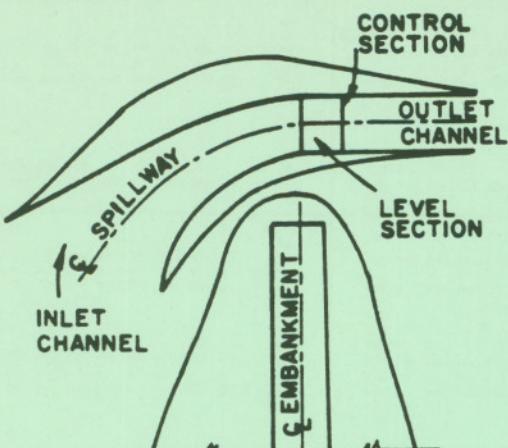
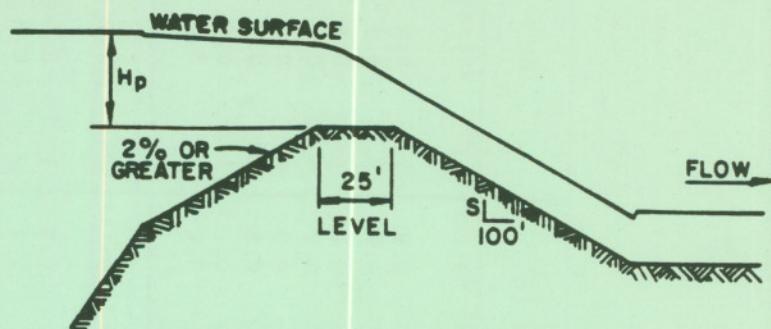


DESIGN DATA FOR VEGATATED SPILLWAYS



PLAN OF EMERGENCY SPILLWAY



PROFILE ALONG C OF VEGETATED SPILLWAY



CROSS SECTION OF VEGETATED SPILLWAY AT CONTROL SECTION

LEGEND

- Hp Difference in Elevation between Crest of Earth Spillway at the Control Section and Water Surface in Reservoir, in Feet.
 BW Bottom Width of Earth Spillway at the Control Section, in Feet.
 Q Total Discharge, in cfs.
 V Velocity, in Feet Per Second, that will exist in Channel below Control Section, at Design Q, if Constructed to Slope (S) that is shown.
 S flattest Slope (S) in %, allowable for Channel below Control Section.
 Z Side Slope Ratio.

Index

<u>Side Slope Ratio</u>	<u>Cover</u>	<u>Retardance</u>	<u>Sheets</u>
3:1	Vegetated	B	2-19
3:1	Vegetated	C-D	20-37

Note: All data noted with an asterisk (*) have supercritical flow. Data in the shaded area has exit velocities in excess of 6 FT/sec. Designs with these designations should be used with caution.

REFERENCE

NENTC - EFM Notice 26

Exhibit 11-2.1

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
NORTHEAST NATIONAL TECHNICAL CENTER
CHESTER, PENNSYLVANIA

TSC - NE - ENG.

1140

SHEET 1 OF 37

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE B
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 8'			BW = 10'			BW = 12'			BW = 14'			BW = 16'			BW = 18'			
S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	
(CFS) 5	1	0.4	1.2	1	0.4	1.1	1	0.4	1.1	1	0.4	1.0	1	0.4	0.9	1	0.4	0.9
	2	0.6	1.1	2	0.5	1.1	2	0.5	1.0	2	0.5	0.9	2	0.5	0.9	2	0.4	0.8
	4	0.7	1.1	4	0.7	1.0	4	0.6	1.0	4	0.6	0.9	4	0.6	0.8	4	0.6	0.8
	6	0.8	1.1	6	0.8	1.0	6	0.7	0.9	6	0.7	0.9	6	0.7	0.8	6	0.6	0.8
	8	0.9	1.1	8	0.9	1.0	8	0.8	0.9	8	0.7	0.9	8	0.7	0.8	8	0.7	0.8
	10	1.0	1.1	10	0.9	1.0	10	0.9	0.9	10	0.8	0.9	10	0.8	0.8	10	0.7	0.8
	12	1.1	1.1	12	1.0	1.0	12	0.9	0.9	12	0.8	0.9	12	0.8	0.8	12	0.8	0.8
	15	1.2	1.1	15	1.1	1.0	15	1.0	0.9	15	0.9	0.9	15	0.9	0.8	15	0.8	0.8
S(%)			S(%)			S(%)			S(%)			S(%)			S(%)			
(CFS) 10	1	0.7	1.5	1	0.6	1.4	1	0.6	1.3	1	0.5	1.3	1	0.5	1.2	1	0.5	1.2
	2	0.9	1.3	2	0.8	1.3	2	0.8	1.2	2	0.7	1.2	2	0.7	1.1	2	0.6	1.1
	4	1.2	1.3	4	1.1	1.2	4	1.0	1.2	4	0.9	1.1	4	0.8	1.1	4	0.8	1.0
	6	1.4	1.2	6	1.3	1.2	6	1.2	1.1	6	1.1	1.1	6	1.0	1.1	6	0.9	1.0
	8	1.6	1.2	8	1.4	1.2	8	1.3	1.1	8	1.2	1.1	8	1.1	1.1	8	1.0	1.0
	10	1.7	1.2	10	1.6	1.2	10	1.4	1.1	10	1.3	1.1	10	1.1	1.1	10	1.1	1.0
	12	1.9	1.2	12	1.7	1.2	12	1.5	1.1	12	1.3	1.1	12	1.2	1.1	12	1.1	1.0
	15	2.0	1.2	15	1.8	1.2	15	1.6	1.1	15	1.4	1.1	15	1.3	1.1	15	1.2	1.0
S(%)			S(%)			S(%)			S(%)			S(%)			S(%)			
(CFS) 15	1	0.9	1.6	1	0.9	1.5	1	0.8	1.4	1	0.7	1.4	1	0.7	1.3	1	0.7	1.3
	2	1.2	1.4	2	1.1	1.3	2	1.1	1.3	2	1.0	1.2	2	0.9	1.2	2	0.8	1.2
	4	1.7	1.3	4	1.5	1.3	4	1.4	1.2	4	1.3	1.2	4	1.2	1.1	4	1.1	1.1
	6	2.0	1.3	6	1.8	1.3	6	1.6	1.2	6	1.5	1.2	6	1.4	1.1	6	1.3	1.1
	8	2.2	1.3	8	2.0	1.2	8	1.8	1.2	8	1.6	1.2	8	1.5	1.1	8	1.4	1.1
	10	2.4	1.3	10	2.1	1.2	10	1.9	1.2	10	1.8	1.2	10	1.6	1.1	10	1.5	1.1
	12	2.5	1.3	12	2.3	1.2	12	2.1	1.2	12	1.9	1.1	12	1.7	1.1	12	1.6	1.1
	15	2.8	1.3	15	2.5	1.2	15	2.2	1.2	15	2.0	1.1	15	1.8	1.1	15	1.7	1.1

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE B
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 20'			BW = 22'			BW = 24'			BW = 26'			BW = 28'			BW = 30'			
S(%)	V(fps)	Hp(ft)																
(CFS)	1	0.3	0.8	1	0.3	0.8	1	0.3	0.8	1	0.3	0.7	1	0.3	0.7	1	0.3	0.7
	2	0.4	0.8	2	0.4	0.7	2	0.4	0.7	2	0.4	0.7	2	0.4	0.7	2	0.4	0.6
	4	0.5	0.8	4	0.5	0.7	4	0.5	0.7	4	0.5	0.7	4	0.5	0.7	4	0.5	0.6
	5	0.6	0.8	6	0.6	0.7	6	0.6	0.7	6	0.6	0.7	6	0.5	0.6	6	0.5	0.6
	6	0.7	0.8	8	0.6	0.7	8	0.6	0.7	8	0.6	0.7	8	0.6	0.6	8	0.6	0.6
	8	0.7	0.8	10	0.7	0.7	10	0.7	0.7	10	0.7	0.7	10	0.6	0.6	10	0.6	0.6
	10	0.7	0.8	12	0.7	0.7	12	0.7	0.7	12	0.7	0.7	12	0.7	0.6	12	0.7	0.6
	12	0.8	0.8	15	0.8	0.7	15	0.8	0.7	15	0.7	0.7	15	0.7	0.6	15	0.7	0.6
S(%)	V(fps)	Hp(ft)																
(CFS)	1	0.5	1.1	1	0.4	1.1	1	0.4	1.1	1	0.4	1.0	1	0.4	1.0	1	0.4	1.0
	2	0.6	1.1	2	0.6	1.0	2	0.5	1.0	2	0.5	1.0	2	0.5	0.9	2	0.5	0.9
	4	0.7	1.0	4	0.7	1.0	4	0.7	1.0	4	0.6	0.9	4	0.6	0.9	4	0.6	0.9
	6	0.8	1.0	6	0.8	1.0	6	0.8	0.9	6	0.7	0.9	6	0.7	0.9	6	0.7	0.9
	8	0.9	1.0	8	0.9	1.0	8	0.8	0.9	8	0.8	0.9	8	0.8	0.9	8	0.8	0.9
	10	1.0	1.0	10	1.0	1.0	10	0.9	0.9	10	0.9	0.9	10	0.8	0.9	10	0.8	0.9
	12	1.1	1.0	12	1.0	1.0	12	1.0	0.9	12	0.9	0.9	12	0.9	0.9	12	0.9	0.9
	15	1.1	1.0	15	1.1	1.0	15	1.0	0.9	15	1.0	0.9	15	0.9	0.9	15	0.9	0.9
S(%)	V(fps)	Hp(ft)																
(CFS)	1	0.6	1.3	1	0.6	1.2	1	0.6	1.2	1	0.5	1.2	1	0.5	1.2	1	0.5	1.1
	2	0.8	1.2	2	0.7	1.1	2	0.7	1.1	2	0.7	1.1	2	0.6	1.1	2	0.6	1.0
	4	1.0	1.1	4	0.9	1.1	4	0.9	1.1	4	0.8	1.0	4	0.8	1.0	4	0.8	1.0
	6	1.2	1.1	6	1.1	1.1	6	1.0	1.0	6	1.0	1.0	6	0.9	1.0	6	0.9	1.0
	8	1.3	1.1	8	1.2	1.1	8	1.1	1.0	8	1.1	1.0	8	1.0	1.0	8	1.0	1.0
	10	1.4	1.1	10	1.3	1.1	10	1.2	1.0	10	1.1	1.0	10	1.1	1.0	10	1.0	1.0
	12	1.5	1.1	12	1.4	1.1	12	1.3	1.0	12	1.2	1.0	12	1.1	1.0	12	1.1	1.0
	15	1.6	1.1	15	1.5	1.1	15	1.4	1.0	15	1.3	1.0	15	1.2	1.0	15	1.2	1.0

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE B
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 32'			BW = 34'			BW = 36'			BW = 38'			BW = 40'			BW =		
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)												
(CFS)	1	0.3	0.7	1	0.3	0.6	1	0.3	0.6	1	0.3	0.6	1	0.3	0.6	1	
	2	0.4	0.6	2	0.4	0.6	2	0.4	0.6	2	0.3	0.6	2	0.3	0.6	2	
	4	0.5	0.6	4	0.4	0.6	4	0.4	0.6	4	0.4	0.6	4	0.4	0.6	4	
	5	0.5	0.6	6	0.5	0.6	6	0.5	0.6	6	0.5	0.6	6	0.5	0.6	6	
	6	0.5	0.6	8	0.6	0.6	8	0.5	0.6	8	0.5	0.6	8	0.5	0.5	8	
	8	0.6	0.6	10	0.6	0.6	10	0.6	0.6	10	0.6	0.6	10	0.6	0.5	10	
	10	0.6	0.6	12	0.6	0.6	12	0.6	0.6	12	0.6	0.6	12	0.6	0.5	12	
	12	0.6	0.6	15	0.7	0.6	15	0.7	0.6	15	0.6	0.6	15	0.6	0.5	15	
S(%)			S(%)			S(%)			S(%)			S(%)			S(%)		
(CFS)	1	0.4	0.9	1	0.4	0.9	1	0.4	0.9	1	0.4	0.9	1	0.4	0.8	1	
	2	0.5	0.9	2	0.5	0.9	2	0.5	0.8	2	0.5	0.8	2	0.4	0.8	2	
	4	0.6	0.9	4	0.6	0.8	4	0.6	0.8	4	0.6	0.8	4	0.5	0.8	4	
	6	0.7	0.8	6	0.7	0.8	6	0.6	0.8	6	0.6	0.8	6	0.6	0.8	6	
	8	0.7	0.8	8	0.7	0.8	8	0.7	0.8	8	0.7	0.8	8	0.7	0.8	8	
	10	0.8	0.8	10	0.8	0.8	10	0.8	0.8	10	0.7	0.8	10	0.7	0.8	10	
	12	0.8	0.8	12	0.8	0.8	12	0.8	0.8	12	0.8	0.8	12	0.8	0.8	12	
	15	0.9	0.8	15	0.9	0.8	15	0.9	0.8	15	0.8	0.8	15	0.8	0.8	15	
S(%)			S(%)			S(%)			S(%)			S(%)			S(%)		
(CFS)	1	0.5	1.1	1	0.5	1.1	1	0.4	1.1	1	0.4	1.0	1	0.4	1.0	1	
	2	0.6	1.0	2	0.6	1.0	2	0.6	1.0	2	0.5	1.0	2	0.5	1.0	2	
	4	0.7	1.0	4	0.7	1.0	4	0.7	1.0	4	0.7	0.9	4	0.7	0.9	4	
	6	0.8	1.0	6	0.8	1.0	6	0.8	0.9	6	0.8	0.9	6	0.7	0.9	6	
	8	0.9	1.0	8	0.9	1.0	8	0.9	0.9	8	0.8	0.9	8	0.8	0.9	8	
	10	1.0	1.0	10	1.0	0.9	10	0.9	0.9	10	0.9	0.9	10	0.9	0.9	10	
	12	1.1	1.0	12	1.0	0.9	12	1.0	0.9	12	1.0	0.9	12	0.9	0.9	12	
	15	1.1	1.0	15	1.1	0.9	15	1.1	0.9	15	1.0	0.9	15	1.0	0.9	15	

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE B
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 8'			BW = 10'			BW = 12'			BW = 14'			BW = 16'			BW = 18'			
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
(CFS) 20 (CPS) 30	1	1.1	1.6	1	1.1	1.6	1	1.0	1.5	1	0.9	1.4	1	0.9	1.4	1	0.8	1.3
	2	1.5	1.5	2	1.4	1.4	2	1.3	1.4	2	1.2	1.3	2	1.1	1.3	2	1.1	1.2
	4	2.0	1.4	4	1.9	1.3	4	1.7	1.3	4	1.6	1.2	4	1.5	1.2	4	1.4	1.2
	6	2.4	1.4	6	2.2	1.3	6	2.0	1.3	6	1.8	1.2	6	1.7	1.2	6	1.6	1.2
	8	2.7	1.4	8	2.4	1.3	8	2.2	1.3	8	2.0	1.2	8	1.9	1.2	8	1.7	1.1
	10	2.9	1.4	10	2.6	1.3	10	2.4	1.3	10	2.2	1.2	10	2.0	1.2	10	1.9	1.1
	12	3.1	1.4	12	2.8	1.3	12	2.6	1.3	12	2.4	1.2	12	2.2	1.2	12	2.0	1.1
	15	3.4	1.4	15	3.1	1.3	15	2.8	1.3	15	2.5	1.2	15	2.3	1.2	15	2.2	1.1
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
(CFS) 40 (CPS) 10*	1	1.5	1.8	1	1.4	1.7	1	1.3	1.6	1	1.3	1.5	1	1.2	1.5	1	1.1	1.4
	2	2.0	1.7	2	1.9	1.6	2	1.8	1.5	2	1.6	1.4	2	1.5	1.4	2	1.5	1.3
	4	2.7	1.6	4	2.5	1.5	4	2.3	1.4	4	2.1	1.4	4	2.0	1.3	4	1.9	1.3
	6	3.1	1.6	6	2.9	1.5	6	2.6	1.4	6	2.5	1.3	6	2.3	1.3	6	2.2	1.2
	8	3.5	1.6	8	3.2	1.5	8	2.9	1.4	8	2.7	1.3	8	2.6	1.3	8	2.4	1.2
	10	3.8	1.6	10	3.5	1.5	10	3.2	1.4	10	3.0	1.3	10	2.8	1.3	10	2.6	1.2
	12	4.1	1.6	12	3.7	1.5	12	3.4	1.4	12	3.2	1.3	12	2.9	1.3	12	2.7	1.2
	15*	4.5	1.6	15*	4.1	1.5	15	3.7	1.4	15	3.4	1.3	15	3.2	1.3	15	3.0	1.2
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
(CFS) 10*	1	1.8	2.0	1	1.7	1.8	1	1.6	1.7	1	1.5	1.7	1	1.5	1.6	1	1.4	1.5
	2	2.4	1.8	2	2.3	1.7	2	2.1	1.6	2	2.0	1.5	2	1.9	1.5	2	1.8	1.4
	4	3.2	1.7	4	3.0	1.6	4	2.8	1.5	4	2.6	1.5	4	2.4	1.4	4	2.3	1.4
	6	3.8	1.7	6	3.5	1.6	6	3.2	1.5	6	3.0	1.4	6	2.8	1.4	6	2.7	1.3
	8	4.3	1.7	8	3.9	1.6	8	3.6	1.5	8	3.3	1.4	8	3.1	1.4	8	2.9	1.3
	10*	4.6	1.7	10	4.3	1.6	10	3.9	1.5	10	3.6	1.4	10	3.4	1.4	10	3.2	1.3
	12*	5.0	1.7	12*	4.5	1.6	12	4.2	1.5	12	3.9	1.4	12	3.6	1.4	12	3.4	1.3
	15*	5.4	1.7	15*	4.9	1.6	15*	4.5	1.5	15*	4.2	1.4	15	3.9	1.4	15	3.6	1.3

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE B
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 20'			BW = 22'			BW = 24'			BW = 26'			BW = 28'			BW = 30'			
S(%)	V(fps)	Hp(ft)																
1	0.8	1.3	1	0.7	1.3	1	0.7	1.3	1	0.7	1.2	1	0.6	1.2	1	0.6	1.2	
2	1.0	1.2	2	0.9	1.2	2	0.9	1.2	2	0.8	1.1	2	0.8	1.1	2	0.8	1.1	
4	1.3	1.1	4	1.2	1.1	4	1.1	1.1	4	1.1	1.1	4	1.0	1.1	4	1.0	1.1	
20	6	1.5	1.1	6	1.4	1.1	6	1.3	1.1	6	1.2	1.1	6	1.2	1.1	6	1.1	1.0
(CFS) 8	1.6	1.1	8	1.5	1.1	8	1.4	1.1	8	1.3	1.1	8	1.3	1.1	8	1.2	1.0	
	10	1.8	1.1	10	1.6	1.1	10	1.5	1.1	10	1.4	1.1	10	1.4	1.0	10	1.3	1.0
12	1.9	1.1	12	1.7	1.1	12	1.6	1.1	12	1.5	1.1	12	1.5	1.0	12	1.4	1.0	
15	2.0	1.1	15	1.9	1.1	15	1.8	1.1	15	1.7	1.1	15	1.6	1.0	15	1.5	1.0	
<hr/>			<hr/>			<hr/>			<hr/>			<hr/>			<hr/>			
S(%)	V(fps)	Hp(ft)																
1	1.1	1.4	1	1.0	1.4	1	1.0	1.3	1	0.9	1.3	1	0.9	1.3	1	0.8	1.3	
2	1.4	1.3	2	1.3	1.3	2	1.2	1.2	2	1.2	1.2	2	1.1	1.2	2	1.1	1.2	
4	1.8	1.2	4	1.7	1.2	4	1.6	1.2	4	1.5	1.2	4	1.4	1.1	4	1.4	1.1	
30	6	2.0	1.2	6	1.9	1.2	6	1.8	1.2	6	1.7	1.1	6	1.6	1.1	6	1.6	1.1
(CFS) 8	2.2	1.2	8	2.1	1.2	8	2.0	1.2	8	1.9	1.1	8	1.8	1.1	8	1.7	1.1	
	10	2.4	1.2	10	2.3	1.2	10	2.1	1.2	10	2.0	1.1	10	1.9	1.1	10	1.8	1.1
12	2.6	1.2	12	2.4	1.2	12	2.3	1.1	12	2.1	1.1	12	2.0	1.1	12	1.9	1.1	
15	2.8	1.2	15	2.6	1.2	15	2.5	1.1	15	2.3	1.1	15	2.2	1.1	15	2.1	1.1	
<hr/>			<hr/>			<hr/>			<hr/>			<hr/>			<hr/>			
S(%)	V(fps)	Hp(ft)																
1	1.3	1.5	1	1.3	1.5	1	1.2	1.4	1	1.2	1.4	1	1.1	1.4	1	1.1	1.4	
2	1.7	1.4	2	1.6	1.3	2	1.5	1.3	2	1.5	1.3	2	1.4	1.3	2	1.4	1.2	
4	2.2	1.3	4	2.1	1.3	4	2.0	1.2	4	1.9	1.2	4	1.8	1.2	4	1.7	1.2	
40	6	2.5	1.3	6	2.4	1.3	6	2.3	1.2	6	2.1	1.2	6	2.0	1.2	6	1.9	1.2
(CFS) 8	2.8	1.3	8	2.6	1.3	8	2.5	1.2	8	2.4	1.2	8	2.2	1.2	8	2.1	1.2	
	10	3.0	1.3	10	2.8	1.3	10	2.7	1.2	10	2.5	1.2	10	2.4	1.2	10	2.3	1.2
12	3.2	1.3	12	3.0	1.3	12	2.8	1.2	12	2.7	1.2	12	2.6	1.2	12	2.4	1.2	
15	3.4	1.3	15	3.2	1.3	15	3.0	1.2	15	2.9	1.2	15	2.7	1.2	15	2.6	1.2	

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE B
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 32'			BW = 34'			BW = 36'			BW = 38'			BW = 40'			BW =		
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)												
(CFS) 8	1	0.6	1.2	1	0.6	1.2	1	0.5	1.2	1	0.5	1.1	1	0.5	1.1	1	
	2	0.7	1.1	2	0.7	1.1	2	0.7	1.1	2	0.7	1.1	2	0.6	1.0	2	
	4	0.9	1.0	4	0.9	1.0	4	0.8	1.0	4	0.8	1.0	4	0.8	1.0	4	
	6	1.1	1.0	6	1.0	1.0	6	0.9	1.0	6	0.9	1.0	6	0.9	1.0	6	
	8	1.2	1.0	8	1.1	1.0	8	1.0	1.0	8	1.0	1.0	8	1.0	1.0	8	
	10	1.2	1.0	10	1.2	1.0	10	1.1	1.0	10	1.1	1.0	10	1.1	1.0	10	
	12	1.3	1.0	12	1.3	1.0	12	1.2	1.0	12	1.2	1.0	12	1.1	1.0	12	
	15	1.4	1.0	15	1.3	1.0	15	1.3	1.0	15	1.2	1.0	15	1.2	1.0	15	
S(%)			S(%)			S(%)			S(%)			S(%)			S(%)		
(CFS) 8	1	0.8	1.3	1	0.8	1.2	1	0.8	1.2	1	0.7	1.2	1	0.7	1.2	1	
	2	1.0	1.2	2	1.0	1.1	2	0.9	1.1	2	0.9	1.1	2	0.9	1.1	2	
	4	1.3	1.1	4	1.2	1.1	4	1.2	1.1	4	1.1	1.1	4	1.1	1.1	4	
	6	1.5	1.1	6	1.4	1.1	6	1.4	1.1	6	1.3	1.1	6	1.3	1.1	6	
	8	1.6	1.1	8	1.6	1.1	8	1.5	1.1	8	1.4	1.1	8	1.4	1.0	8	
	10	1.7	1.1	10	1.7	1.1	10	1.6	1.1	10	1.5	1.1	10	1.5	1.0	10	
	12	1.9	1.1	12	1.8	1.1	12	1.7	1.1	12	1.6	1.0	12	1.6	1.0	12	
	15	2.0	1.1	15	1.9	1.1	15	1.8	1.1	15	1.7	1.0	15	1.7	1.0	15	
S(%)			S(%)			S(%)			S(%)			S(%)			S(%)		
(CFS) 8	1	1.0	1.3	1	1.0	1.3	1	0.9	1.3	1	0.9	1.3	1	0.9	1.3	1	
	2	1.3	1.2	2	1.2	1.2	2	1.2	1.2	2	1.2	1.2	2	1.1	1.2	2	
	4	1.6	1.2	4	1.6	1.1	4	1.5	1.1	4	1.4	1.1	4	1.4	1.1	4	
	6	1.9	1.2	6	1.8	1.1	6	1.7	1.1	6	1.6	1.1	6	1.6	1.1	6	
	8	2.0	1.1	8	2.0	1.1	8	1.9	1.1	8	1.8	1.1	8	1.7	1.1	8	
	10	2.2	1.1	10	2.1	1.1	10	2.0	1.1	10	1.9	1.1	10	1.9	1.1	10	
	12	2.3	1.1	12	2.2	1.1	12	2.1	1.1	12	2.1	1.1	12	2.0	1.1	12	
	15	2.5	1.1	15	2.4	1.1	15	2.3	1.1	15	2.2	1.1	15	2.1	1.1	15	

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE B
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 8'			BW = 10'			BW = 12'			BW = 14'			BW = 16'			BW = 18'			
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
1	2.1	2.1	1	2.0	1.9	1	1.9	1.8	1	1.8	1.8	1	1.7	1.7	1	1.6	1.6	
2	2.8	1.9	2	2.6	1.8	2	2.5	1.7	2	2.3	1.6	2	2.2	1.6	2	2.1	1.5	
4	3.7	1.8	4	3.5	1.7	4	3.3	1.6	4	3.0	1.6	4	2.9	1.5	4	2.7	1.4	
50	6	4.4	1.8	6	4.1	1.7	6	3.8	1.6	6	3.5	1.5	6	3.3	1.5	6	3.1	1.4
(CFS)	8*	4.9	1.8	8	4.5	1.7	8	4.2	1.6	8	3.9	1.5	8	3.7	1.5	8	3.4	1.4
	10*	5.3	1.8	10*	4.9	1.7	10	4.6	1.6	10	4.2	1.5	10	4.0	1.5	10	3.7	1.4
	12*	5.7	1.8	12*	5.3	1.7	12*	4.9	1.6	12*	4.5	1.5	12	4.2	1.5	12	4.0	1.4
	15*	6.2	1.8	15*	5.7	1.7	15*	5.3	1.6	15*	4.9	1.5	15*	4.6	1.5	15*	4.3	1.4
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
1	2.3	2.2	1	2.2	2.0	1	2.1	1.9	1	2.0	1.9	1	1.9	1.8	1	1.8	1.7	
2	3.1	2.0	2	3.0	1.9	2	2.8	1.8	2	2.7	1.7	2	2.5	1.6	2	2.4	1.6	
4	4.1	1.9	4	3.9	1.8	4	3.7	1.7	4	3.4	1.6	4	3.2	1.6	4	3.1	1.5	
60	6	4.9	1.9	6	4.6	1.8	6	4.3	1.7	6	4.0	1.6	6	3.7	1.6	6	3.5	1.5
(CFS)	8*	5.5	1.9	8*	5.1	1.8	8	4.7	1.7	8	4.4	1.6	8	4.2	1.6	8	3.9	1.5
	10*	5.9	1.9	10*	5.5	1.8	10*	5.1	1.7	10*	4.8	1.6	10	4.5	1.6	10	4.2	1.5
	12*	6.4	1.9	12*	5.9	1.8	12*	5.5	1.7	12*	5.1	1.6	12*	4.8	1.6	12*	4.5	1.5
	15*	6.9	1.9	15*	5.4	1.8	15*	5.9	1.7	15*	5.5	1.6	15*	5.2	1.6	15*	4.9	1.5
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
1	2.7	2.4	1	2.7	2.2	1	2.5	2.1	1	2.4	2.0	1	2.3	1.9	1	2.2	1.9	
2	3.7	2.2	2	3.5	2.1	2	3.3	2.0	2	3.2	1.9	2	3.0	1.8	2	2.9	1.7	
4	4.9	2.2	4	4.6	2.0	4	4.4	1.9	4	4.1	1.8	4	3.9	1.7	4	3.7	1.7	
80	6*	5.7	2.1	6*	5.4	2.0	6	5.1	1.9	6	4.8	1.8	6	4.5	1.7	6	4.3	1.6
(CFS)	8*	6.4	2.1	8*	6.0	2.0	8*	5.7	1.9	8*	5.3	1.8	8*	5.0	1.7	8	4.7	1.6
	10*	7.0	2.1	10*	6.5	2.0	10*	6.1	1.9	10*	5.7	1.8	10*	5.4	1.7	10*	5.1	1.6
	12*	7.5	2.1	12*	7.0	2.0	12*	6.5	1.9	12*	6.1	1.8	12*	5.8	1.7	12*	5.5	1.6
	15*	8.1	2.1	15*	7.6	2.0	15*	7.1	1.9	15*	6.6	1.8	15*	6.3	1.7	15*	5.9	1.6

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE B
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 20'			BW = 22'			BW = 24'			BW = 26'			BW = 28'			BW = 30'			
S(%)	V(fps)	Hp(ft)																
(CFS) 8	1	1.5	1.6	1	1.5	1.5	1	1.4	1.5	1	1.4	1.5	1	1.3	1.4	1	1.3	1.4
	2	2.0	1.5	2	1.9	1.4	2	1.8	1.4	2	1.7	1.3	2	1.7	1.3	2	1.6	1.3
	4	2.5	1.4	4	2.4	1.4	4	2.3	1.3	4	2.2	1.3	4	2.1	1.3	4	2.0	1.2
	6	2.9	1.4	6	2.8	1.3	6	2.6	1.3	6	2.5	1.3	6	2.4	1.3	6	2.3	1.2
	8	3.2	1.4	8	3.1	1.3	8	2.9	1.3	8	2.8	1.3	8	2.6	1.2	8	2.5	1.2
	10	3.5	1.4	10	3.3	1.3	10	3.1	1.3	10	3.0	1.3	10	2.8	1.2	10	2.7	1.2
	12	3.7	1.4	12	3.5	1.3	12	3.3	1.3	12	3.2	1.3	12	3.0	1.2	12	2.9	1.2
	15	4.0	1.4	15	3.8	1.3	15	3.6	1.3	15	3.4	1.3	15	3.2	1.2	15	3.1	1.2
S(%)			S(%)			S(%)			S(%)			S(%)			S(%)			
(CFS) 8	1	1.7	1.7	1	1.7	1.6	1	1.6	1.6	1	1.5	1.5	1	1.5	1.5	1	1.4	1.5
	2	2.3	1.5	2	2.2	1.5	2	2.1	1.4	2	2.0	1.4	2	1.9	1.4	2	1.8	1.4
	4	2.9	1.5	4	2.8	1.4	4	2.6	1.4	4	2.5	1.4	4	2.4	1.3	4	2.3	1.3
	6	3.3	1.5	6	3.2	1.4	6	3.0	1.4	6	2.9	1.3	6	2.7	1.3	6	2.6	1.3
	8	3.7	1.4	8	3.5	1.4	8	3.3	1.4	8	3.2	1.3	8	3.0	1.3	8	2.9	1.3
	10	4.0	1.4	10	3.8	1.4	10	3.6	1.4	10	3.4	1.3	10	3.2	1.3	10	3.1	1.3
	12	4.2	1.4	12	4.0	1.4	12	3.8	1.4	12	3.6	1.3	12	3.4	1.3	12	3.3	1.3
	15*	4.6	1.4	15*	4.3	1.4	15	4.1	1.4	15	3.9	1.3	15	3.7	1.3	15	3.5	1.3
S(%)			S(%)			S(%)			S(%)			S(%)			S(%)			
(CFS) 8	1	2.1	1.8	1	2.1	1.7	1	2.0	1.7	1	1.9	1.7	1	1.8	1.6	1	1.8	1.6
	2	2.8	1.7	2	2.6	1.6	2	2.5	1.6	2	2.4	1.5	2	2.3	1.5	2	2.2	1.5
	4	3.5	1.6	4	3.4	1.5	4	3.2	1.5	4	3.1	1.5	4	3.0	1.4	4	2.8	1.4
	6	4.1	1.6	6	3.9	1.5	6	3.7	1.5	6	3.5	1.5	6	3.4	1.4	6	3.2	1.4
	8	4.5	1.6	8	4.3	1.5	8	4.1	1.5	8	3.9	1.5	8	3.7	1.4	8	3.6	1.4
	10*	4.9	1.6	10*	4.6	1.5	10	4.4	1.5	10	4.2	1.5	10	4.0	1.4	10	3.8	1.4
	12*	5.2	1.6	12*	4.9	1.5	12*	4.7	1.5	12*	4.5	1.5	12	4.3	1.4	12	4.1	1.4
	15*	5.6	1.6	15*	5.3	1.5	15*	5.0	1.5	15*	4.8	1.5	15*	4.6	1.4	15*	4.4	1.4

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE B
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 32'			BW = 34'			BW = 36'			BW = 38'			BW = 40'			BW =		
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)												
1	1.2	1.4	1	1.2	1.4	1	1.1	1.3	1	1.1	1.3	1	1.1	1.3	1		
2	1.5	1.3	2	1.5	0.3	2	1.4	0.2	2	1.4	1.2	2	1.3	1.2	2		
4	1.9	1.2	4	1.9	0.2	4	1.8	0.2	4	1.7	1.2	4	1.7	1.2	4		
50	2.2	1.2	6	2.1	0.2	6	2.0	0.2	6	2.0	1.2	6	1.9	1.1	6		
(CFS) 8	2.4	1.2	8	2.3	0.2	8	2.2	0.2	8	2.2	1.2	8	2.1	1.1	8		
10	2.6	1.2	10	2.5	0.2	10	2.4	0.2	10	2.3	1.1	10	2.2	1.1	10		
12	2.8	1.2	12	2.6	0.2	12	2.5	0.2	12	2.4	1.1	12	2.4	1.1	12		
15	3.0	1.2	15	2.9	0.2	15	2.7	0.2	15	2.6	1.1	15	2.5	1.1	15		
<hr/>																	
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)												
1	1.4	1.4	1	1.3	1.4	1	1.3	1.4	1	1.3	1.4	1	1.2	1.4	1		
2	1.8	1.3	2	1.7	1.3	2	1.6	1.3	2	1.6	1.3	2	1.5	1.3	2		
4	2.2	1.3	4	2.1	1.3	4	2.1	1.2	4	2.0	1.2	4	1.9	0.2	4		
60	2.5	1.3	6	2.4	1.2	6	2.3	1.2	6	2.3	1.2	6	2.2	0.2	6		
(CFS) 8	2.8	1.3	8	2.7	1.2	8	2.6	1.2	8	2.5	1.2	8	2.4	0.2	8		
10	3.0	1.3	10	2.9	1.2	10	2.8	1.2	10	2.7	1.2	10	2.6	0.2	10		
12	3.2	1.3	12	3.0	1.2	12	2.9	1.2	12	2.8	1.2	12	2.7	0.2	12		
15	3.4	1.3	15	3.3	1.2	15	3.1	1.2	15	3.0	1.2	15	2.9	0.2	15		
<hr/>																	
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)												
1	1.7	1.6	1	1.6	1.5	1	1.6	1.5	1	1.5	1.5	1	1.5	1.5	1		
2	2.2	1.4	2	2.1	1.4	2	2.0	1.4	2	1.9	1.4	2	1.9	1.3	2		
4	2.7	1.4	4	2.6	1.4	4	2.5	1.3	4	2.4	1.3	4	2.4	1.3	4		
80	3.1	1.4	6	3.0	1.3	6	2.9	1.3	6	2.8	1.3	6	2.7	1.3	6		
(CFS) 8	3.4	1.4	8	3.3	1.3	8	3.2	1.3	8	3.1	1.3	8	3.0	1.3	8		
10	3.7	1.4	10	3.5	1.3	10	3.4	1.3	10	3.3	1.3	10	3.2	1.3	10		
12	3.9	1.4	12	3.7	1.3	12	3.6	1.3	12	3.5	1.3	12	3.4	1.3	12		
15*	4.2	1.4	15	4.0	1.3	15	3.9	1.3	15	3.7	1.3	15	3.6	1.3	15		

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE B
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 8'			BW = 10'			BW = 12'			BW = 14'			BW = 16'			BW = 18'			
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
100 (CFS)	1	3.1	2.6	1	3.0	2.4	1	2.9	2.3	1	2.8	2.2	1	2.7	2.1	1	2.6	2.0
	2	4.1	2.4	2	4.0	2.2	2	3.8	2.1	2	3.6	2.0	2	3.5	1.9	2	3.3	1.8
	4	5.4	2.3	4	5.2	2.2	4	5.0	2.1	4	4.7	2.0	4	4.5	1.9	4	4.3	1.8
	6*	6.4	2.3	6*	6.1	2.2	6*	5.8	2.1	6*	5.5	2.0	6	5.2	1.9	6	4.9	1.8
	8*	7.2	2.3	8*	6.8	2.2	8*	6.4	2.1	8*	6.0	2.0	8*	5.7	1.9	8*	5.5	1.8
	10*	7.8	2.3	10*	7.4	2.2	10*	7.0	2.1	10*	6.6	2.0	10*	6.2	1.9	10*	5.9	1.8
	12*	8.4	2.3	12*	7.9	2.2	12*	7.4	2.1	12*	7.0	2.0	12*	6.6	1.9	12*	6.3	1.8
	15*	8.6	2.2	15*	8.1	2.1	15*	7.6	2.0	15*	7.2	1.9	15*	6.8	1.8	15*	6.8	1.8
S(%)			S(%)			S(%)			S(%)			S(%)			S(%)			
125 (CFS)	1	3.4	2.8	1	3.3	2.6	1	3.2	2.5	1	3.1	2.4	1	3.1	2.2	1	2.9	2.2
	2	3.6	2.6	2	4.4	2.5	2	4.3	2.3	2	4.1	2.2	2	4.0	2.1	2	3.8	2.0
	4	6.0	2.6	4	5.8	2.4	4	5.6	2.3	4	5.3	2.1	4	5.1	2.0	4	4.9	2.0
	6*	7.2	2.6	6*	6.8	2.4	6*	6.5	2.3	6*	6.2	2.1	6*	5.9	2.0	6*	5.6	2.0
	8*	8.0	2.6	8*	7.6	2.4	8*	7.2	2.3	8*	6.8	2.1	8*	6.5	2.0	8*	6.2	2.0
	10*	8.3	2.4	10*	7.9	2.3	10*	7.4	2.1	10*	7.0	2.1	10*	6.7	2.0	10*	6.3	2.0
	12*			12*	8.4	2.3	12*	7.9	2.1	12*	7.5	2.0	12*	7.2	2.0	12*	7.0	2.0
S(%)			S(%)			S(%)			S(%)			S(%)			S(%)			
150 (CFS)	1	3.7	3.0	1	3.6	2.8	1	3.6	2.6	1	3.5	2.5	1	3.4	2.4	1	3.3	2.3
	2	5.0	2.8	2	4.9	2.6	2	4.7	2.5	2	4.6	2.4	2	4.4	2.3	2	4.2	2.2
	4*	6.6	2.8	4*	6.3	2.6	4*	6.1	2.4	4	5.9	2.3	4	5.6	2.2	4	5.4	2.1
	6*	7.1	2.8	6*	7.5	2.6	6*	7.1	2.4	6*	6.8	2.3	6*	6.5	2.2	6*	6.3	2.1
	8*	8.7	2.8	8*	8.2	2.6	8*	7.9	2.4	8*	7.5	2.3	8*	7.2	2.2	8*	6.9	2.1
	10*			10*			10*			10*			10*			10*		
	12*			12*			12*			12*			12*			12*		

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE B
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 20'			BW = 22'			BW = 24'			BW = 26'			BW = 28'			BW = 30'			
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
100 (CFS) 8*	1	2.5	1.9	1	2.4	1.9	1	2.3	1.8	1	2.2	1.8	1	2.1	1.7	1	2.1	1.7
	2	3.2	1.8	2	3.1	1.7	2	2.9	1.7	2	2.8	1.6	2	2.7	1.6	2	2.6	1.6
	4	4.1	1.7	4	3.9	1.7	4	3.7	1.6	4	3.6	1.6	4	3.5	1.5	4	3.3	1.5
	6	4.7	1.7	6	4.5	1.7	6	4.3	1.6	6	4.1	1.6	6	4.0	1.5	6	3.8	1.5
	8*	5.2	1.7	8*	5.0	1.7	8	4.8	1.6	10*	4.9	1.6	10*	4.7	1.5	8	4.2	1.5
	10*	5.6	1.7	10*	5.4	1.7	10*	5.1	1.6	12*	5.2	1.6	12*	5.0	1.5	10	4.5	1.5
	12*	6.0	1.7	12*	5.7	1.7	12*	5.4	1.6	15*	5.9	1.6	15*	5.6	1.5	12*	4.8	1.5
	15*	6.5	1.7	15*	6.2	1.7	15*	5.9	1.6	15*	5.6	1.6	15*	5.4	1.5	15*	5.1	1.5
125 (CFS) 8*	1	2.8	2.1	1	2.7	2.0	1	2.7	1.9	1	2.6	1.8	1	2.5	1.8	1	2.4	1.8
	2	3.7	1.9	2	3.5	1.9	2	3.4	1.8	2	3.3	1.8	2	3.2	1.7	2	3.1	1.7
	4	4.7	1.9	4	4.5	1.8	4	4.3	1.8	4	4.2	1.7	4	4.0	1.7	4	3.9	1.6
	6*	5.4	1.9	6	5.2	1.8	6	5.0	1.7	6	4.8	1.7	6	4.6	1.7	6	4.4	1.6
	8*	6.0	1.9	8*	5.7	1.8	8*	5.5	1.7	8*	5.3	1.7	8*	5.1	1.6	8*	4.9	1.6
	10*	6.5	1.9	10*	6.2	1.8	10*	5.9	1.7	10*	5.7	1.7	10*	5.5	1.6	10*	5.2	1.6
	12*	6.9	1.9	12*	6.6	1.8	12*	6.3	1.7	15*	6.0	1.7	15*	5.8	1.6	12*	5.6	1.6
	15*	7.4	1.9	15*	7.1	1.8	15*	6.8	1.7	15*	6.5	1.7	15*	6.2	1.6	15*	6.0	1.6
150 (CFS) 8*	1	3.2	2.2	1	3.1	2.1	1	3.0	2.1	1	2.9	2.0	1	2.8	2.0	1	2.7	1.9
	2	4.1	2.1	2	3.9	2.0	2	3.8	1.9	2	3.7	1.9	2	3.6	1.8	2	3.4	1.8
	4	5.2	2.0	4	5.0	2.0	4	4.8	1.9	4	4.7	1.8	4	4.5	1.8	4	4.4	1.7
	6*	6.0	2.0	6*	5.8	2.0	6*	5.6	1.9	6*	5.4	1.8	6	5.2	1.8	6	5.0	1.7
	8*	6.4	2.0	8*	6.1	1.9	8*	6.1	1.9	8*	5.9	1.8	8*	5.7	1.8	8*	5.5	1.7
	10*	7.4	2.0	10*	6.9	2.0	10*	6.5	1.9	10*	6.4	1.8	10*	6.1	1.8	10*	5.9	1.7
	12*	7.8	2.0	12*	7.3	2.0	12*	7.0	1.9	12*	6.8	1.8	12*	6.5	1.8	12*	6.3	1.7
	15*	8.2	2.0	15*	7.9	2.0	15*	7.6	1.9	15*	7.3	1.8	15*	7.0	1.8	15*	6.7	1.7

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE B
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 32'			BW = 34'			BW = 36'			BW = 38'			BW = 40'			BW =			
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
100 (CFS) 8	1	2.0	1.6	1	1.9	1.6	1	1.9	1.6	1	1.8	1.6	1	1.8	1.5	1		
	2	2.5	1.5	2	2.4	1.5	2	2.4	1.5	2	2.3	1.5	2	2.2	1.4	2		
	4	3.2	1.4	4	3.1	1.4	4	3.0	1.4	4	2.9	1.4	4	2.8	1.4	4		
	6	3.7	1.4	6	3.5	1.4	6	3.4	1.4	6	3.3	1.4	6	3.2	1.4	6		
	8	4.0	1.4	8	3.9	1.4	8	3.7	1.4	8	3.6	1.4	8	3.5	1.4	8		
	10	4.3	1.4	10	4.2	1.4	10	4.0	1.4	10	3.9	1.4	10	3.7	1.4	10		
	12*	4.6	1.4	12*	4.4	1.4	12	4.3	1.4	12	4.1	1.4	12	4.0	1.4	12		
	15*	4.9	1.4	15*	4.7	1.4	15*	4.6	1.4	15*	4.4	1.4	15*	4.3	1.4	15		
125 (CFS) 8	1	2.3	1.8	1	2.3	1.7	1	2.2	1.7	1	2.1	1.7	1	2.1	1.6	1		
	2	2.9	1.6	2	2.9	1.6	2	2.8	1.6	2	2.7	1.5	2	2.6	1.5	2		
	4	3.7	1.6	4	3.6	1.5	4	3.5	1.5	4	3.4	1.5	4	3.3	1.5	4		
	6	4.3	1.6	6	4.1	1.5	6	4.0	1.5	6	3.9	1.5	6	3.7	1.5	6		
	8	4.7	1.6	8	4.5	1.5	8	4.4	1.5	8	4.2	1.5	8	4.1	1.5	8		
	10*	5.1	1.6	10*	4.9	1.5	10*	4.7	1.5	10	4.6	1.5	10	4.4	1.5	10		
	12*	5.3	1.6	12*	5.2	1.5	12*	5.0	1.5	12*	4.8	1.5	12*	4.7	1.5	12		
	15*	5.8	1.6	15*	5.6	1.5	15*	5.4	1.5	15*	5.2	1.5	15*	5.0	1.5	15		
150 (CFS) 8*	1	2.6	1.9	1	2.5	1.8	1	2.5	1.8	1	2.4	1.8	1	2.3	1.7	1		
	2	3.3	1.7	2	3.2	1.7	2	3.1	1.7	2	3.0	1.6	2	3.0	1.6	2		
	4	4.2	1.7	4	4.1	1.7	4	3.9	1.6	4	3.8	1.6	4	3.7	1.6	4		
	6	4.8	1.7	6	4.7	1.6	6	4.5	1.6	6	4.4	1.6	6	4.2	1.5	6		
	8*	5.3	1.7	8*	5.1	1.6	8*	5.0	1.6	8	4.8	1.6	8	4.7	1.5	8		
	10*	5.7	1.7	10*	5.5	1.6	10*	5.3	1.6	10*	5.2	1.6	10*	5.0	1.5	10		
	12*	6.1	1.7	12*	5.9	1.6	12*	5.7	1.6	12*	5.5	1.6	12*	5.3	1.5	12		
	15*	6.5	1.7	15*	6.3	1.6	15*	6.1	1.6	15*	5.9	1.6	15*	5.7	1.5	15		

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE B
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 8'			BW = 10'			BW = 12'			BW = 14'			BW = 16'			BW = 18'			
S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	
175 (CFS)	1	4.1	3.2	1	4.0	3.0	1	3.8	2.8	1	3.8	2.7	1	3.6	2.6	1	3.5	2.5
	2	5.3	3.0	2	5.2	2.8	2	5.1	2.7	2	4.9	2.5	2	4.8	2.4	2	4.6	2.3
	4*	7.0	3.0	4*	6.8	2.8	4*	6.6	2.6	4*	6.3	2.5	4*	6.1	2.4	4	5.9	2.3
	6*	8.3	3.0	6*	8.0	2.8	6*	7.7	2.6	6*	7.4	2.5	6*	7.1	2.4	6*	6.8	2.3
	8*			8*			8*			8*			8*			8*		
	10*			10*			10*			10*			10*			10*		
200 (CFS)	1	4.3	3.3	1	4.2	3.1	1	4.1	3.0	1	4.0	2.8	1	3.9	2.7	1	3.8	2.6
	2	5.6	3.2	2	5.5	3.0	2	5.4	2.8	2	5.2	2.7	2	5.1	2.5	2	5.0	2.4
	4*	7.3	3.1	4*	7.1	2.9	4*	7.0	2.8	4*	6.8	2.6	4*	6.6	2.5	4*	6.3	2.4
	6*	8.7	3.1	6*	8.4	2.9	6*	8.2	2.8	6*	7.9	2.6	6*	7.6	2.5	6*	7.3	2.4
	8*			8*			8*			8*			8*			8*		
	10*			10*			10*			10*			10*			10*		
250 (CFS)	1	4.7	3.6	1	4.6	3.4	1	4.6	3.3	1	4.4	3.1	1	4.4	3.0	1	4.2	2.8
	2	6.3	3.5	2	6.1	3.3	2	5.9	3.1	2	5.8	2.9	2	5.6	2.8	2*	5.5	2.7
	4*	8.2	3.5	4*	7.9	3.3	4*	7.8	3.1	4*	7.5	2.9	4*	7.3	2.8	4*	7.1	2.7
	6*			6*			6*			6*			6*			6*		
	8*			8*			8*			8*			8*			8*		
	10*			10*			10*			10*			10*			10*		

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE B
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 20'			BW = 22'			BW = 24'			BW = 26'			BW = 28'			BW = 30'			
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
175 (CFS)	1	3.4	2.4	1	3.4	2.3	1	3.3	2.2	1	3.2	2.1	1	3.1	2.1	1	3.0	2.0
	2	4.4	2.2	2	4.3	2.1	2	4.2	2.1	2	4.0	2.0	2	3.9	1.9	2	3.8	1.9
	4	5.7	2.2	4	5.5	2.1	4	5.3	2.0	4	5.1	2.0	4	4.9	1.9	4	4.8	1.8
	6*	6.6	2.2	6*	6.3	2.1	6*	6.1	2.0	6*	5.9	2.0	6*	5.7	1.9	6*	5.5	1.8
	8*	7.2	2.2	8*	7.0	2.1	8*	6.7	2.0	8*	6.5	2.0	8*	6.3	1.9	8*	6.0	1.8
	10*	7.8	2.2	10*	7.5	2.1	10*	7.2	2.0	10*	7.0	2.0	10*	6.7	1.9	10*	6.5	1.8
	12*	8.3	2.2	12*	8.0	2.1	12*	7.7	2.0	12*	7.4	2.0	12*	7.2	1.9	12*	6.9	1.8
200 (CFS)	1	3.7	2.5	1	3.6	2.4	1	3.5	2.3	1	3.4	2.2	1	3.3	2.2	1	3.2	2.1
	2	4.8	2.3	2	4.6	2.3	2	4.5	2.2	2	4.3	2.1	2	4.3	2.0	2	4.1	2.0
	4*	6.1	2.5	4	5.9	2.2	4	5.7	2.1	4	5.5	2.1	4	5.4	2.0	4	5.2	2.0
	6*	7.0	2.3	6*	6.8	2.2	6*	6.6	2.1	6*	6.3	2.1	6*	6.1	2.0	6*	5.9	1.9
	8*	7.8	2.3	8*	7.5	2.2	8*	7.2	2.1	8*	7.0	2.1	8*	6.8	2.0	8*	6.5	1.9
	10*	8.4	2.3	10*	8.1	2.2	10*	7.8	2.1	10*	7.5	2.1	10*	7.3	2.0	10*	7.1	1.9
	12*			12*			12*			12*			12*			12*		
250 (CFS)	1	4.1	2.7	1	4.0	2.6	1	3.9	2.5	1	3.9	2.5	1	3.8	2.4	1	3.7	2.3
	2	5.3	2.6	2	5.2	2.5	2	5.1	2.4	2	4.9	2.3	2	4.8	2.3	2	4.7	2.2
	4*	6.9	2.6	4*	6.6	2.5	4*	6.5	2.4	4*	6.3	2.3	4*	6.1	2.2	4	5.9	2.2
	6*	7.9	2.8	6*	7.7	2.5	6*	7.4	2.4	6*	7.2	2.3	6*	7.0	2.2	6*	6.8	2.2
	8*			8*			8*			8*			8*			8*		

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE B
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 32'			BW = 34'			BW = 36'			BW = 38'			BW = 40'			BW =			
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
175 (CFS) 8*	1	2.9	2.0	1	2.8	1.9	1	2.7	1.9	1	2.7	1.9	1	2.6	1.8	1		
	2	3.7	1.8	2	3.6	1.8	2	3.5	1.8	2	3.4	1.7	2	3.3	1.7	2		
	4	4.6	1.8	4	4.5	1.8	4	4.4	1.7	4	4.2	1.7	4	4.1	1.6	4		
	6	5.3	1.8	6	5.1	1.7	6	5.0	1.7	6	4.8	1.7	6	4.7	1.6	6		
	8*	5.8	1.8	8*	5.7	1.7	8*	5.5	1.7	8*	5.3	1.7	8*	5.2	1.6	8		
	10*	6.3	1.8	10*	6.1	1.7	10*	5.9	1.7	10*	5.7	1.7	10*	5.6	1.6	10		
	12*	6.7	1.8	12*	6.5	1.7	12*	6.4	1.7	12*	6.1	1.7	12*	5.9	1.6	12		
	15*	7.2	1.8	15*	6.9	1.7	15*	6.7	1.7	15*	6.3	1.7	15*	6.1	1.6	15		
200 (CFS) 6*	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)									
	1	3.1	2.1	1	3.1	2.0	1	3.0	2.0	1	2.9	1.9	1	2.8	1.9	1		
	2	4.0	1.9	2	3.9	1.9	2	3.8	1.9	2	3.7	1.8	2	3.6	1.8	2		
	4	5.0	1.9	4	4.9	1.9	4	4.8	1.8	4	4.6	1.8	4	4.5	1.7	4		
	6*	5.8	1.9	6*	5.6	1.9	6*	5.4	1.8	6*	5.3	1.8	6	5.1	1.7	6		
	8*	6.3	1.9	8*	6.1	1.9	8*	6.0	1.8	8*	5.8	1.8	8*	5.6	1.7	8		
	10*	6.8	1.9	10*	6.6	1.9	10*	6.4	1.8	10*	6.2	1.8	10*	6.1	1.7	10		
	12*	7.2	1.9	12*	7.0	1.9	12*	6.8	1.8	12*	6.6	1.8	12*	6.4	1.7	12		
	15*	7.8	1.9	15*	7.6	1.9	15*	7.3	1.8	15*	7.1	1.8	15*	6.9	1.7	15		
250 (CFS) 6*	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)									
	1	3.6	2.3	1	3.5	2.2	1	3.4	2.2	1	3.3	2.1	1	3.2	2.1	1		
	2	4.5	2.1	2	4.4	2.1	2	4.3	2.0	2	4.2	2.0	2	4.1	1.9	2		
	4	5.7	2.1	4	5.6	2.0	4	5.4	2.0	4	5.3	2.0	4	5.2	1.9	4		
	6*	6.4	2.1	6*	6.4	2.0	6*	6.2	2.0	6*	6.0	2.0	6*	5.9	1.9	6		
	8*	7.2	2.1	8*	7.0	2.0	8*	6.8	2.0	8*	6.6	2.0	8*	6.5	1.9	8		
	10*	7.8	2.1	10*	7.6	2.0	10*	7.3	2.0	10*	7.1	2.0	10*	7.0	1.9	10		
	12*	8.3	2.1	12*	8.0	2.0	12*	7.8	2.0	12*	7.6	2.0	12*	7.4	1.9	12		
	15*			15*	8.4	2.0	15*	8.1	2.0	15*	7.9	2.0	15*	7.9	1.9	15		

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE B
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 8'			BW = 10'			BW = 12'			BW = 14'			BW = 16'			BW = 18'		
S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)
1	5.1	3.9	1	5.0	3.7	1	4.9	3.5	1	4.8	3.4	1	4.7	3.2	1	4.6	3.1
2	6.7	5.0	2	6.6	3.6	2	6.5	3.4	2	6.3	3.2	2	6.2	3.1	2	6.0	2.9
4*	8.8	3.8	4*	8.6	3.5	4*	8.4	3.4	4*	8.1	3.2	4*	7.9	3.0	4*	7.7	2.9
300 (CFS)																	

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE B
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 20'			BW = 22'			BW = 24'			BW = 26'			BW = 28'			BW = 30'			
S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	
1	4.5	3.0	1	4.4	2.9	1	4.3	2.8	1	4.2	2.7	1	4.1	2.6	1	4.1	2.5	
2	5.8	2.8	2	5.7	2.7	2	5.6	2.6	2	5.4	2.5	2	5.3	2.5	2	5.2	2.4	
300 (CFS)	4*	7.5	2.8	4*	7.3	2.7	4*	7.1	2.6	4*	6.9	2.5	4*	6.7	2.4	4*	6.6	2.4
	5*	8.7	2.8	5*	8.4	2.7	6*	8.1	2.6	6*	7.9	2.5	6*	7.7	2.4	6*	7.5	2.4
	6*												8*	8.5	2.4	8*	8.2	2.4

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE B
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 32'			BW = 34'			BW = 36'			BW = 38'			BW = 40'			BW =			
S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	
300 (CFS)	1	4.0	2.4	1	3.9	2.4	1	3.8	2.3	1	3.7	2.3	1	3.6	2.2			
	2	5.0	2.3	2	4.9	2.3	2	4.8	2.2	2	4.7	2.2	2	4.6	2.1			
	3*	6.4	2.3	3*	6.2	2.2	4	6.0	2.2	4	5.9	2.1	4	5.7	2.1			
	6*	7.1	2.3	6*	7.1	2.2	6*	6.9	2.2	6*	6.7	2.1	6*	6.6	2.1			
	8*	8.0	2.3	8*	7.8	2.2	8*	7.6	2.2	8*	7.4	2.1	8*	7.2	2.1			
	10*	8.4	2.2	10*	8.2	2.2	10*	8.0	2.2	10*	7.9	2.1	10*	7.7	2.1			
	12*	8.7	2.1										12*	8.4	2.1			

DESIGN DATA FOR EARTH SPILLWAYS

RETARDANCE C-D

SIDE SLOPE 3:1

LEVEL CREST LENGTH 25'

BW = 8'			BW = 10'			BW = 12'			BW = 14'			BW = 16'			BW = 18'			
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
(CFS)	1	0.7	0.9	1	0.6	0.9	1	0.5	0.8	1	0.5	0.8	1	0.5	0.7	1	0.5	0.7
	2	0.9	0.9	2	0.8	0.8	2	0.7	0.8	2	0.6	0.7	2	0.6	0.7	2	0.6	0.7
	4	1.1	0.8	4	1.0	0.8	4	0.9	0.8	4	0.8	0.7	4	0.8	0.7	4	0.7	0.6
	5	1.3	0.8	6	1.2	0.8	6	1.0	0.8	6	0.9	0.7	6	0.9	0.7	6	0.8	0.6
	6	1.5	0.8	8	1.3	0.8	8	1.1	0.8	8	1.0	0.7	8	0.9	0.7	8	0.9	0.6
	10	1.6	0.8	10	1.4	0.8	10	1.2	0.8	10	1.1	0.7	10	1.0	0.7	10	1.0	0.6
	12	1.7	0.8	12	1.5	0.8	12	1.3	0.8	12	1.2	0.7	12	1.1	0.7	12	1.0	0.6
	15	1.8	0.8	15	1.6	0.8	15	1.4	0.8	15	1.2	0.7	15	1.2	0.7	15	1.1	0.6
(CFS)	1	1.1	1.0	1	1.0	1.0	1	0.9	0.9	1	0.9	0.9	1	0.8	0.9	1	0.7	0.9
	2	1.5	1.0	2	1.4	0.9	2	1.2	0.9	2	1.1	0.8	2	1.0	0.8	2	0.9	0.8
	4	1.9	0.9	4	1.8	0.9	4	1.6	0.8	4	1.4	0.8	4	1.3	0.8	4	1.2	0.8
	6	2.3	0.9	6	2.0	0.9	6	1.8	0.8	6	1.6	0.8	6	1.5	0.8	6	1.4	0.8
	8	2.5	0.9	8	2.2	0.9	8	2.0	0.8	8	1.8	0.8	8	1.6	0.8	8	1.5	0.8
	10	2.7	0.9	10	2.4	0.9	10	2.2	0.8	10	1.9	0.8	10	1.8	0.8	10	1.6	0.8
	12	2.9	0.9	12	2.6	0.9	12	2.3	0.8	12	2.1	0.8	12	1.9	0.8	12	1.7	0.8
	15	3.1	0.9	15	2.8	0.9	15	2.5	0.8	15	2.2	0.8	15	2.0	0.8	15	1.8	0.8
(CFS)	1	1.5	1.1	1	1.4	1.1	1	1.3	1.0	1	1.2	1.0	1	1.1	0.9	1	1.0	0.9
	2	2.0	1.1	2	1.8	1.0	2	1.7	1.0	2	1.5	0.9	2	1.4	0.9	2	1.3	0.9
	4	2.6	1.0	4	2.3	1.0	4	2.1	0.9	4	1.9	0.9	4	1.8	0.9	4	1.7	0.8
	6	3.0	1.0	6	2.7	1.0	6	2.4	0.9	6	2.2	0.9	6	2.1	0.9	6	1.9	0.8
	8	3.4	1.0	8	3.0	1.0	8	2.7	0.9	8	2.5	0.9	8	2.3	0.8	8	2.1	0.8
	10	3.7	1.0	10	3.2	1.0	10	2.9	0.9	10	2.7	0.9	10	2.4	0.8	10	2.2	0.8
	12	3.9	1.0	12*	3.4	1.0	12*	3.1	0.9	12	2.8	0.9	12	2.6	0.8	12	2.4	0.8
	15	4.2	1.0	15*	3.7	1.0	15	3.3	0.9	15	3.0	0.9	15	2.8	0.8	15	2.6	0.8

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE C-D
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 20'			BW = 22'			BW = 24'			BW = 26'			BW = 28'			BW = 30'			
S(%)	V(fps)	Hp(ft)																
(CFS)	1	0.5	0.7	1	0.4	0.6	1	0.4	0.6	1	0.4	0.6	1	0.4	0.6	1	0.4	0.5
	2	0.6	0.6	2	0.6	0.6	2	0.5	0.6	2	0.5	0.6	2	0.5	0.5	2	0.5	0.5
	4	0.7	0.6	4	0.7	0.6	4	0.7	0.6	4	0.6	0.5	4	0.6	0.5	4	0.6	0.5
	5	0.8	0.6	6	0.8	0.6	6	0.8	0.6	6	0.7	0.5	6	0.7	0.5	6	0.7	0.5
	6	0.9	0.6	8	0.8	0.6	8	0.8	0.6	8	0.8	0.5	8	0.8	0.5	8	0.8	0.5
	8	0.9	0.6	10	0.9	0.6	10	0.9	0.6	10	0.9	0.5	10	0.8	0.5	10	0.8	0.5
	10	0.9	0.6	12	1.0	0.6	12	0.9	0.6	12	0.9	0.5	12	0.9	0.5	12	0.9	0.5
	12	1.0	0.6	15	1.0	0.6	15	1.0	0.6	15	1.0	0.5	15	0.9	0.5	15	0.9	0.5
S(%)			S(%)			S(%)			S(%)			S(%)			S(%)			
(CFS)	1	0.7	0.8	1	0.7	0.8	1	0.6	0.8	1	0.6	0.8	1	0.5	0.8	1	0.5	0.8
	2	0.9	0.8	2	0.8	0.8	2	0.8	0.8	2	0.7	0.8	2	0.7	0.7	2	0.6	0.7
	4	1.1	0.8	4	1.0	0.7	4	1.0	0.7	4	0.9	0.7	4	0.9	0.7	4	0.8	0.7
	6	1.3	0.8	6	1.2	0.7	6	1.1	0.7	6	1.0	0.7	6	1.0	0.7	6	0.9	0.7
	8	1.4	0.8	8	1.3	0.7	8	1.2	0.7	8	1.1	0.7	8	1.1	0.7	8	1.0	0.7
	10	1.5	0.8	10	1.4	0.7	10	1.3	0.7	10	1.2	0.7	10	1.1	0.7	10	1.1	0.7
	12	1.6	0.8	12	1.5	0.7	12	1.4	0.7	12	1.3	0.7	12	1.2	0.7	12	1.1	0.7
	15	1.7	0.7	15	1.6	0.7	15	1.5	0.7	15	1.4	0.7	15	1.3	0.7	15	1.2	0.7
S(%)			S(%)			S(%)			S(%)			S(%)			S(%)			
(CFS)	1	1.0	0.9	1	0.9	0.9	1	0.9	0.9	1	0.8	0.8	1	0.8	0.8	1	0.7	0.8
	2	1.2	0.8	2	1.2	0.8	2	1.1	0.8	2	1.0	0.8	2	1.0	0.8	2	0.9	0.8
	4	1.5	0.8	4	1.4	0.8	4	1.4	0.8	4	1.3	0.8	4	1.2	0.8	4	1.2	0.7
	6	1.8	0.8	6	1.7	0.8	6	1.6	0.8	6	1.5	0.8	6	1.4	0.8	6	1.3	0.7
	8	1.9	0.8	8	1.8	0.8	8	1.7	0.8	8	1.6	0.8	8	1.5	0.8	8	1.4	0.7
	10	2.1	0.8	10	1.9	0.8	10	1.8	0.8	10	1.7	0.8	10	1.6	0.7	10	1.5	0.7
	12	2.2	0.8	12	2.1	0.8	12	1.9	0.8	12	1.8	0.8	12	1.7	0.7	12	1.6	0.7
	15	2.4	0.8	15	2.2	0.8	15	2.1	0.8	15	2.0	0.8	15	1.8	0.7	15	1.7	0.7

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE C-D
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 32'			BW = 34'			BW = 36'			BW = 38'			BW = 40'			BW =		
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)												
(CFS)	1	0.4	0.5	1	0.4	0.5	1	0.4	0.5	1	0.4	0.5	1	0.4	0.5	1	
	2	0.5	0.5	2	0.5	0.5	2	0.5	0.5	2	0.4	0.5	2	0.4	0.5	2	
	4	0.6	0.5	4	0.6	0.5	4	0.6	0.5	4	0.6	0.5	4	0.6	0.4	4	
	5	0.7	0.5	6	0.7	0.5	6	0.7	0.5	6	0.6	0.5	6	0.6	0.4	6	
	8	0.7	0.5	8	0.7	0.5	8	0.7	0.5	8	0.7	0.5	8	0.7	0.4	8	
	10	0.8	0.5	10	0.8	0.5	10	0.8	0.5	10	0.7	0.5	10	0.7	0.4	10	
	12	0.8	0.5	12	0.8	0.5	12	0.8	0.5	12	0.8	0.5	12	0.8	0.4	12	
	15	0.9	0.5	15	0.9	0.5	15	0.9	0.5	15	0.8	0.5	15	0.8	0.4	15	
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)												
(CFS)	1	0.5	0.8	1	0.5	0.7	1	0.5	0.7	1	0.5	0.7	1	0.5	0.7	1	
	2	0.6	0.7	2	0.6	0.7	2	0.6	0.7	2	0.6	0.6	2	0.6	0.6	2	
	4	0.8	0.7	4	0.8	0.7	4	0.8	0.7	4	0.7	0.6	4	0.7	0.6	4	
	6	0.9	0.7	6	0.9	0.7	6	0.9	0.6	6	0.8	0.6	6	0.8	0.6	6	
	8	1.0	0.7	8	0.9	0.7	8	0.9	0.6	8	0.9	0.6	8	0.9	0.6	8	
	10	1.0	0.7	10	1.0	0.7	10	1.0	0.6	10	1.0	0.6	10	1.0	0.6	10	
	12	1.1	0.7	12	1.1	0.7	12	1.0	0.6	12	1.0	0.6	12	1.0	0.6	12	
	15	1.2	0.7	15	1.1	0.7	15	1.1	0.6	15	1.1	0.6	15	1.1	0.6	15	
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)												
(CFS)	1	0.7	0.8	1	0.7	0.8	1	0.6	0.8	1	0.6	0.8	1	0.6	0.8	1	
	2	0.9	0.8	2	0.8	0.8	2	0.8	0.7	2	0.8	0.7	2	0.7	0.7	2	
	4	1.1	0.7	4	1.0	0.7	4	1.0	0.7	4	1.0	0.7	4	0.9	0.7	4	
	6	1.2	0.7	6	1.2	0.7	6	1.1	0.7	6	1.1	0.7	6	1.0	0.7	6	
	8	1.4	0.7	8	1.3	0.7	8	1.2	0.7	8	1.2	0.7	8	1.1	0.7	8	
	10	1.5	0.7	10	1.4	0.7	10	1.3	0.7	10	1.3	0.7	10	1.2	0.7	10	
	12	1.5	0.7	12	1.5	0.7	12	1.4	0.7	12	1.3	0.7	12	1.3	0.7	12	
	15	1.7	0.7	15	1.6	0.7	15	1.5	0.7	15	1.4	0.7	15	1.4	0.7	15	

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE C-D
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 8'			BW = 10'			BW = 12'			BW = 14'			BW = 16'			BW = 18'			
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
1	1.9	1.2	1	1.7	1.1	1	1.6	1.1	1	1.5	0.0	1	1.4	1.0	1	1.3	1.0	
2	2.4	1.2	2	2.2	1.1	2	2.0	1.0	2	1.9	0.0	2	1.7	0.9	2	1.6	0.9	
4	3.2	1.1	4	2.9	1.1	4	2.6	1.0	4	2.4	0.0	4	2.2	0.9	4	2.1	0.9	
20	6	3.7	1.1	6	3.3	1.0	6	3.0	1.0	6	2.8	0.9	6	2.5	0.9	6	2.4	0.9
(CFS)	8*	4.1	1.1	8*	3.7	1.0	8	3.3	1.0	8	3.1	0.9	8	2.8	0.9	8	2.6	0.9
	10*	4.4	1.1	10*	4.0	1.0	10*	3.6	1.0	10	3.3	0.9	10	3.0	0.9	10	2.8	0.9
	12*	4.7	1.1	12*	4.2	1.0	12*	3.8	1.0	12*	3.5	0.9	12	3.2	0.9	12	3.0	0.9
	15*	5.1	1.1	15*	4.6	1.0	15*	4.1	1.0	15*	3.8	0.9	15*	3.5	0.9	15*	3.2	0.9
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
1	2.4	1.4	1	2.2	1.3	1	2.1	1.2	1	1.9	1.2	1	1.8	1.1	1	1.7	1.1	
2	3.1	1.3	2	2.9	1.2	2	2.7	1.1	2	2.5	1.1	2	2.3	1.0	2	2.2	1.0	
4	4.1	1.3	4	3.7	1.2	4	3.5	1.1	4	3.2	1.1	4	3.0	1.0	4	2.8	1.0	
30	6*	4.7	1.3	6*	4.3	1.2	6*	4.0	1.1	6	3.7	1.1	6	3.4	1.0	6	3.2	1.0
(CFS)	8*	5.2	1.3	8*	4.8	1.2	8*	4.4	1.1	8*	4.1	1.1	8*	3.8	1.0	8	3.5	1.0
	10*	5.7	1.3	10*	5.2	1.2	10*	4.8	1.1	10*	4.4	1.1	10*	4.1	1.0	10*	3.8	1.0
	12*	6.1	1.3	12*	5.5	1.2	12*	5.1	1.1	12*	4.7	1.1	12*	4.3	1.0	12*	4.0	1.0
	15*	6.6	1.3	15*	6.0	1.2	15*	5.4	1.1	15*	5.0	1.1	15*	4.6	1.0	15*	4.3	1.0
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
1	2.8	1.5	1	2.7	1.4	1	2.5	1.3	1	2.3	1.3	1	2.2	1.2	1	2.1	1.2	
2	3.7	1.5	2	3.5	1.4	2	3.2	1.3	2	3.0	1.2	2	2.8	1.1	2	2.7	1.1	
4*	4.8	1.4	4*	4.5	1.3	4	4.1	1.3	4	3.9	1.2	4	3.6	1.1	4	3.4	1.1	
40	6*	5.6	1.4	6*	5.1	1.3	6*	4.8	1.3	6*	4.5	1.2	6*	4.2	1.1	6	3.9	1.1
(CFS)	8*	6.2	1.4	8*	5.7	1.3	8*	5.3	1.3	8*	4.9	1.2	8*	4.6	1.1	8*	4.3	1.1
	10*	6.7	1.4	10*	6.2	1.3	10*	5.7	1.3	10*	5.3	1.2	10*	4.9	1.1	10*	4.6	1.1
	12*	7.1	1.4	12*	6.6	1.3	12*	6.1	1.3	12*	5.6	1.2	12*	5.2	1.1	12*	4.9	1.1
	15*	7.7	1.4	15*	7.1	1.3	15*	6.5	1.3	15*	6.0	1.2	15*	5.6	1.1	15*	5.3	1.1

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE C-D
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 20'			BW = 22'			BW = 24'			BW = 26'			BW = 28'			BW = 30'			
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
20 (CFS) 6 8 10 12 15	1	1.2	0.9	1	1.1	0.9	1	1.1	0.9	1	1.0	0.9	1	1.0	1.9	1	0.9	1.9
	2	1.5	0.9	2	1.4	0.9	2	1.4	0.8	2	1.3	0.8	2	1.2	0.8	2	1.2	0.8
	4	1.9	0.9	4	1.8	0.8	4	1.7	0.8	4	1.6	0.8	4	1.5	0.8	4	1.5	0.8
	6	2.2	0.9	6	2.1	0.8	6	2.0	0.8	6	1.8	0.8	6	1.7	0.8	6	1.7	0.8
	8	2.4	0.9	8	2.3	0.8	8	2.1	0.8	8	2.0	0.8	8	1.9	0.8	8	1.8	0.8
	10	2.6	0.9	10	2.4	0.8	10	2.3	0.8	10	2.2	0.8	10	2.1	0.8	10	2.0	0.8
	12	2.8	0.9	12	2.6	0.8	12	2.4	0.8	12	2.3	0.8	12	2.2	0.8	12	2.1	0.8
	15	3.0	0.9	15	2.8	0.8	15	2.6	0.8	15	2.5	0.8	15	2.3	0.8	15	2.2	0.8
30 (CFS) 6 8 10* 12* 15*	1	1.6	1.0	1	1.5	1.0	1	1.5	1.0	1	1.4	1.0	1	1.3	0.9	1	1.3	0.9
	2	2.1	1.0	2	2.0	1.0	2	1.9	0.9	2	1.8	0.9	2	1.7	0.9	2	1.6	0.9
	4	2.6	1.0	4	2.5	0.9	4	2.3	0.9	4	2.2	0.9	4	2.1	0.9	4	2.0	0.9
	6	3.0	1.0	6	2.8	0.9	6	2.7	0.9	6	2.5	0.9	6	2.4	0.9	6	2.3	0.9
	8	3.3	1.0	8	3.1	0.9	8	2.9	0.9	8	2.8	0.9	8	2.6	0.9	8	2.5	0.8
	10*	3.5	1.0	10	3.3	0.9	10	3.1	0.9	10	3.0	0.9	10	2.8	0.9	10	2.7	0.8
	12*	3.8	1.0	12*	3.5	0.9	12	3.3	0.9	12	3.1	0.9	12	3.0	0.9	12	2.8	0.8
	15*	4.0	1.0	15*	3.8	0.9	15*	3.6	0.9	15*	3.4	0.9	15	3.2	0.9	15	3.0	0.8
40 (CFS) 6 8* 10* 12* 15*	1	2.0	1.1	1	1.9	1.1	1	1.8	1.1	1	1.7	1.0	1	1.7	1.0	1	1.6	1.0
	2	2.5	1.1	2	2.4	1.0	2	2.3	1.0	2	2.2	1.0	2	2.1	1.0	2	2.0	0.9
	4	3.2	1.0	4	3.0	1.0	4	2.9	1.0	4	2.7	1.0	4	2.6	0.9	4	2.5	0.9
	6	3.7	1.0	6	3.5	1.0	6	3.3	1.0	6	3.1	1.0	6	3.0	0.9	6	2.8	0.9
	8*	4.0	1.0	8*	3.8	1.0	8	3.6	1.0	8	3.4	1.0	8	3.3	0.9	8*	3.1	0.9
	10*	4.3	1.0	10*	4.1	1.0	10*	3.9	1.0	10*	3.7	1.0	10*	3.5	0.9	10	3.3	0.9
	12*	4.6	1.0	12*	4.3	1.0	12*	4.1	1.0	12*	3.9	1.0	12*	3.7	0.9	12*	3.5	0.9
	15*	5.0	1.0	15*	4.7	1.0	15*	4.4	1.0	15*	4.2	1.0	15*	4.0	0.9	15*	3.8	0.9

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE C-D
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 32'			BW = 34'			BW = 36'			BW = 38'			BW = 40'			BW =		
S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)
(CFS) 20 20 10 12 15	1	0.9	0.8	1	0.9	0.8	1	0.8	0.8	1	0.8	0.8	1	0.8	1.8	1	
	2	1.1	0.8	2	1.1	0.8	2	1.0	0.8	2	1.0	0.8	2	0.9	0.8	2	
	4	1.4	0.8	4	1.3	0.8	4	1.3	0.8	4	1.2	0.8	4	1.2	0.7	4	
	6	1.6	0.8	6	1.5	0.8	6	1.4	0.8	6	1.4	0.7	6	1.3	0.7	6	
	8	1.7	0.8	8	1.7	0.8	8	1.6	0.8	8	1.5	0.7	8	1.5	0.7	8	
	10	1.9	0.8	10	1.8	0.8	10	1.7	0.7	10	1.6	0.7	10	1.6	0.7	10	
	12	2.0	0.8	12	1.9	0.8	12	1.8	0.7	12	1.7	0.7	12	1.7	0.7	12	
	15	2.1	0.8	15	2.0	0.8	15	1.9	0.7	15	1.8	0.7	15	1.8	0.7	15	
S(%)			S(%)			S(%)			S(%)			S(%)			S(%)		
(CFS) 30 30 10 12 15	1	1.2	0.9	1	1.2	0.9	1	1.1	0.9	1	1.1	0.9	1	1.1	0.9	1	
	2	1.5	0.9	2	1.5	0.8	2	1.4	0.8	2	1.4	0.8	2	1.3	0.8	2	
	4	1.9	0.8	4	1.8	0.8	4	1.8	0.8	4	1.7	0.8	4	1.6	0.8	4	
	6	2.2	0.8	6	2.1	0.8	6	2.0	0.8	6	1.9	0.8	6	1.9	0.8	6	
	8	2.4	0.8	8	2.3	0.8	8	2.2	0.8	8	2.1	0.8	8	2.0	0.8	8	
	10	2.6	0.8	10	2.5	0.8	10	2.4	0.8	10	2.3	0.8	10	2.2	0.8	10	
	12	2.7	0.8	12	2.6	0.8	12	2.5	0.8	12	2.4	0.8	12	2.3	0.8	12	
	15	2.9	0.8	15	2.8	0.8	15	2.7	0.8	15	2.6	0.8	15	2.5	0.8	15	
S(%)			S(%)			S(%)			S(%)			S(%)			S(%)		
(CFS) 40 40 10 12* 15*	1	1.5	1.0	1	1.5	1.0	1	1.4	0.9	1	1.4	0.9	1	1.3	0.9	1	
	2	1.9	0.9	2	1.8	0.9	2	1.8	0.9	2	1.7	0.9	2	1.6	0.9	2	
	4	2.4	0.9	4	2.3	0.9	4	2.2	0.9	4	2.1	0.9	4	2.0	0.9	4	
	6	2.7	0.9	6	2.6	0.9	6	2.5	0.9	6	2.4	0.9	6	2.3	0.8	6	
	8	3.0	0.9	8	2.8	0.9	8	2.7	0.9	8	2.6	0.9	8	2.5	0.8	8	
	10	3.2	0.9	10	3.1	0.9	10	2.9	0.9	10	2.8	0.9	10	2.7	0.8	10	
	12*	3.4	0.9	12	3.2	0.9	12	3.1	0.9	12	3.0	0.9	12	2.9	0.8	12	
	15*	3.6	0.9	15*	3.5	0.9	15*	3.3	0.9	15*	3.2	0.9	15	3.1	0.8	15	

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE C-D
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 8'			BW = 10'			BW = 12'			BW = 14'			BW = 16'			BW = 18'			
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
50 (CFS)	1	3.2	1.7	1	3.0	1.5	1	2.9	1.4	1	2.7	1.4	1	2.6	1.3	1	2.4	1.3
	2	4.2	1.6	2	3.9	1.5	2*	3.7	1.4	2	3.5	1.3	2	3.3	1.2	2	3.1	1.2
	4*	5.4	1.6	4*	5.1	1.5	4*	4.7	1.4	4	4.4	1.3	4	4.2	1.2	4	3.9	1.2
	6*	6.1	1.6	6*	5.8	1.5	6*	5.4	1.4	6*	5.1	1.3	6*	4.8	1.2	6*	4.5	1.2
	8*	7.0	1.6	8*	6.4	1.5	8*	6.0	1.4	8*	5.6	1.3	8*	5.3	1.2	8*	5.0	1.2
	10*	7.6	1.6	10*	7.0	1.5	10*	6.5	1.4	10*	6.1	1.3	10*	5.7	1.2	10*	5.3	1.2
	12*	8.3	1.6	12*	7.5	1.5	12*	6.9	1.4	12*	6.5	1.3	12*	6.0	1.2	12*	5.7	1.2
	15*	8.1	1.5	15*	7.5	1.4	15*	7.0	1.3	15*	6.5	1.2	15*	6.1	1.2	15*	5.1	1.2
60 (CFS)	1	3.5	1.8	1	3.3	1.7	1	3.2	1.6	1	3.0	1.5	1	2.9	1.4	1	2.7	1.3
	2	4.6	1.7	2	4.3	1.6	2	4.1	1.5	2	3.8	1.4	2	3.7	1.3	2	3.5	1.3
	4*	5.9	1.7	4*	5.6	1.6	4*	5.2	1.5	4*	4.9	1.4	4*	4.7	1.3	4	4.4	1.3
	6*	6.9	1.7	6*	6.4	1.6	6*	6.0	1.5	6*	5.7	1.4	6*	5.4	1.3	6*	5.1	1.3
	8*	7.6	1.7	8*	7.1	1.6	8*	6.7	1.5	8*	6.3	1.4	8*	5.9	1.3	8*	5.6	1.3
	10*	8.3	1.7	10*	7.7	1.6	10*	7.2	1.5	10*	6.8	1.4	10*	6.4	1.3	10*	6.0	1.3
	12*	8.2	1.6	12*	7.7	1.5	12*	7.2	1.4	12*	7.0	1.4	12*	6.7	1.3	12*	6.4	1.3
	15*	8.3	1.5	15*	7.6	1.5	15*	7.1	1.4	15*	6.7	1.3	15*	6.3	1.3	15*	6.0	1.3
80 (CFS)	1	3.9	2.0	1	3.8	1.9	1	3.7	1.8	1	3.5	1.7	1	3.4	1.6	1	3.2	1.5
	2	5.2	2.0	2	5.0	1.8	2	4.7	1.7	2	4.5	1.6	2	4.3	1.5	2	4.1	1.4
	4*	6.8	2.0	4*	6.4	1.8	4*	6.1	1.7	4*	5.7	1.6	4*	5.5	1.5	4*	5.2	1.4
	6*	7.9	2.0	6*	7.4	1.8	6*	7.0	1.7	6*	6.6	1.6	6*	6.3	1.5	6*	6.0	1.4
	8*	8.2	1.8	8*	7.7	1.7	8*	7.2	1.7	8*	7.0	1.6	8*	6.6	1.5	8*	6.3	1.4
	10*	8.4	1.7	10*	7.8	1.7	10*	7.3	1.6	10*	7.0	1.5	10*	6.7	1.4	10*	6.4	1.4
	12*	8.0	1.6	12*	7.5	1.5	12*	7.0	1.5	12*	6.8	1.4	12*	6.5	1.4	12*	6.2	1.4
	15*	8.1	1.5	15*	7.5	1.4	15*	7.0	1.3	15*	6.7	1.3	15*	6.4	1.3	15*	6.1	1.3

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE C-D
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 20'			BW = 22'			BW = 24'			BW = 26'			BW = 28'			BW = 30'			
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
50 (CFS)	1	2.3	1.2	1	2.2	1.2	1	2.1	1.1	1	2.0	1.1	1	1.9	1.1	1	1.9	1.1
	2	3.0	1.2	2	2.8	1.1	2	2.7	1.1	2	2.6	1.1	2	2.5	1.0	2	2.3	1.0
	4	3.7	1.1	4	3.5	1.1	4	3.4	1.1	4	3.2	1.0	4	3.1	1.0	4	2.9	1.0
	6*	4.3	1.1	6*	4.0	1.1	6	3.8	1.1	6	3.6	1.0	6	3.5	1.0	6	3.3	1.0
	8*	4.7	1.1	8*	4.4	1.1	8*	4.2	1.1	8*	4.0	1.0	8*	3.8	1.0	8*	3.7	1.0
	10*	5.0	1.1	10*	4.8	1.1	10*	4.5	1.1	10*	4.3	1.0	10*	4.1	1.0	10*	3.9	1.0
	12*	5.4	1.1	12*	5.0	1.1	12*	4.8	1.1	12*	4.6	1.0	12*	4.4	1.0	12*	4.2	1.0
	15*	5.8	1.1	15*	5.4	1.1	15*	5.2	1.1	15*	4.9	1.0	15*	4.7	1.0	15*	4.5	1.0
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
60 (CFS)	1	2.6	1.3	1	2.5	1.2	1	2.4	1.2	1	2.3	1.2	1	2.2	1.1	1	2.1	1.1
	2	3.3	1.2	2	3.2	1.2	2	3.0	1.2	2	2.9	1.1	2	2.8	1.1	2	2.7	1.1
	4	4.2	1.2	4	4.0	1.2	4	3.8	1.1	4	3.6	1.1	4	3.5	1.1	4	3.3	1.0
	6*	4.8	1.2	6*	4.6	1.2	6*	4.3	1.1	6*	4.1	1.1	6*	4.0	1.1	6	3.8	1.0
	8*	5.3	1.2	8*	5.0	1.2	8*	4.7	1.1	8*	4.5	1.1	8*	4.4	1.1	8*	4.2	1.0
	10*	5.7	1.2	10*	5.4	1.2	10*	5.1	1.1	10*	4.9	1.1	10*	4.7	1.1	10*	4.5	1.0
	12*	6.0	1.2	12*	5.7	1.2	12*	5.4	1.1	12*	5.2	1.1	12*	5.0	1.1	12*	4.7	1.0
	15*	6.5	1.2	15*	6.1	1.2	15*	5.8	1.1	15*	5.6	1.1	15*	5.3	1.1	15*	5.1	1.0
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
80 (CFS)	1	3.1	1.4	1	3.0	1.4	1	2.9	1.3	1	2.8	1.3	1	2.7	1.3	1	2.6	1.2
	2	3.9	1.4	2	3.8	1.3	2	3.6	1.3	2	3.5	1.2	2	3.4	1.2	2	3.2	1.2
	4*	5.0	1.4	4*	4.8	1.3	4*	4.6	1.3	4	4.4	1.2	4	4.2	1.2	4	4.0	1.2
	6*	5.7	1.4	6*	5.5	1.3	6*	5.2	1.3	6*	5.0	1.2	6*	4.8	1.2	6*	4.6	1.2
	8*	6.3	1.4	8*	6.0	1.3	8*	5.7	1.3	8*	5.5	1.2	8*	5.2	1.2	8*	5.0	1.2
	10*	6.8	1.4	10*	6.4	1.3	10*	6.1	1.3	10*	5.9	1.2	10*	5.6	1.2	10*	5.4	1.2
	12*	7.2	1.4	12*	6.8	1.3	12*	6.5	1.3	12*	6.2	1.2	12*	6.0	1.2	12*	5.8	1.2
	15*	7.7	1.4	15*	7.3	1.3	15*	7.0	1.3	15*	6.7	1.2	15*	6.4	1.2	15*	6.2	1.2

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE C-D
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 32'			BW = 34'			BW = 36'			BW = 38'			BW = 40'			BW =		
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)												
1	1.8	1.0	1	1.7	1.0	1	1.7	1.0	1	1.6	1.0	1	1.6	1.0	1		
2	2.2	1.0	2	2.2	0.0	2	2.1	0.9	2	2.0	0.9	2	1.9	0.9	2		
4	2.8	1.0	4	2.7	0.9	4	2.6	0.9	4	2.5	0.9	4	2.4	0.9	4		
50	6	3.2	1.0	6	3.1	0.9	6	3.0	0.9	6	2.8	0.9	6	2.7	0.9	6	
(CFS)	8	3.5	1.0	8	3.4	0.9	8	3.2	0.9	8	3.1	0.9	8	3.0	0.9	8	
10*	3.8	1.0	10*	3.6	0.9	10*	3.5	0.9	10	3.3	0.9	10	3.2	0.9	10		
12*	4.0	1.0	12*	3.8	0.9	12*	3.7	0.9	12*	3.5	0.9	12*	3.4	0.9	12		
15*	4.3	1.0	15*	4.1	0.9	15*	3.9	0.9	15*	3.8	0.9	15*	3.7	0.9	15		
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)												
1	2.0	1.1	1	2.0	1.1	1	1.9	1.1	1	1.8	1.0	1	1.8	1.0	1		
2	2.6	1.0	2	2.5	1.0	2	2.4	1.0	2	2.3	1.0	2	2.2	1.0	2		
4	3.2	1.0	4	3.1	1.0	4	3.0	1.0	4	2.9	1.0	4	2.8	0.9	4		
60	6	3.7	1.0	6	3.5	1.0	6	3.4	1.0	6	3.3	1.0	6	3.2	0.9	6	
(CFS)	8*	4.0	1.0	8*	3.8	1.0	8*	3.7	1.0	8	3.6	1.0	8	3.4	0.9	8	
10*	4.3	1.0	10*	4.1	1.0	10*	4.0	1.0	10*	3.8	1.0	10*	3.7	0.9	10		
12*	4.5	1.0	12*	4.4	1.0	12*	4.2	1.0	12*	4.1	1.0	12*	3.9	0.9	12		
15*	4.9	1.0	15*	4.7	1.0	15*	4.5	1.0	15*	4.3	1.0	15*	4.2	0.9	15		
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)												
1	2.5	1.2	1	2.4	1.2	1	2.3	1.2	1	2.2	1.1	1	2.2	1.1	1		
2	3.1	1.1	2	3.0	1.1	2	2.9	1.1	2	2.8	1.1	2	2.7	1.1	2		
4	3.9	1.1	4	3.8	1.1	4	3.6	1.1	4	3.5	1.1	4	3.4	1.0	4		
80	6*	4.4	1.1	6*	4.3	1.1	6*	4.1	1.1	6*	4.0	1.1	6	3.9	1.0	6	
(CFS)	8*	4.8	1.1	8*	4.7	1.1	8*	4.5	1.1	8*	4.4	1.1	8*	4.2	1.0	8	
10*	5.2	1.1	10*	5.0	1.1	10*	5.9	1.1	10*	4.7	1.1	10*	4.5	1.0	10		
12*	5.5	1.1	12*	5.3	1.1	12*	5.1	1.1	12*	5.0	1.1	12*	4.8	1.0	12		
15*	5.9	1.1	15*	5.7	1.1	15*	5.5	1.1	15*	5.3	1.1	15*	5.2	1.0	15		

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DESIGN DATA FOR EARTH SPILLWAYS

RETARDANCE C-D

SIDE SLOPE 3:1

LEVEL CREST LENGTH 25'

BW = 8'			BW = 10'			BW = 12'			BW = 14'			BW = 16'			BW = 18'			
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
100 (CFS)	1	4.4	2.2	1	4.2	2.1	1	4.1	1.9	1	3.9	1.8	1	3.8	1.7	1	3.6	1.7
	2	5.7	2.2	2	5.5	2.0	2	5.3	1.9	2	5.0	1.8	2	4.8	1.7	2	4.6	1.6
	4*	7.5	2.2	4*	7.1	2.0	4*	6.8	1.9	4*	6.4	1.8	4*	6.2	1.7	4*	5.9	1.6
	6*	8.7	2.3	6*	8.3	2.0	6*	7.8	1.9	6*	7.4	1.8	6*	7.1	1.7	6*	6.8	1.6
	8*	10.0	2.3	8*	9.6	2.0	8*	8.6	1.9	8*	8.2	1.8	8*	7.8	1.7	8*	7.5	1.6
	10*	11.2	2.3	10*	10.8	2.0	10*	10.0	1.9	10*	9.4	1.8	10*	8.8	1.7	10*	8.0	1.6
	12*	12.4	2.3	12*	12.0	2.0	12*	11.0	1.9	12*	10.4	1.8	12*	9.8	1.7	12*	9.0	1.6
	14*	13.6	2.3	14*	13.2	2.0	14*	12.0	1.9	14*	11.4	1.8	14*	10.8	1.7	14*	10.0	1.6
	16*	14.8	2.3	16*	14.4	2.0	16*	13.0	1.9	16*	12.4	1.8	16*	11.8	1.7	16*	11.0	1.6
	18*	16.0	2.3	18*	15.6	2.0	18*	14.0	1.9	18*	13.4	1.8	18*	12.8	1.7	18*	12.0	1.6
125 (CFS)	1	4.8	2.4	1	4.7	2.3	1	4.5	2.1	1	4.4	2.0	1	4.2	1.9	1	4.1	1.8
	2*	6.3	2.4	2*	6.1	2.3	2*	5.9	2.1	2*	5.6	2.0	2	5.4	1.9	2	5.2	1.8
	4*	8.2	2.4	4*	7.8	2.2	4*	7.5	2.1	4*	7.4	2.0	4*	6.9	1.9	4*	6.6	1.8
	6*	9.1	2.2	6*	8.7	2.1	6*	8.3	2.0	6*	7.9	1.9	6*	7.6	1.8	6*	7.4	1.8
	8*	10.0	2.2	8*	9.6	2.1	8*	9.0	2.0	8*	8.6	1.9	8*	8.4	1.8	8*	8.2	1.8
	10*	11.2	2.2	10*	10.8	2.0	10*	10.0	1.9	10*	9.4	1.8	10*	8.8	1.7	10*	8.4	1.7
	12*	12.4	2.2	12*	12.0	2.0	12*	11.0	1.9	12*	10.4	1.8	12*	9.8	1.7	12*	9.4	1.7
	14*	13.6	2.2	14*	13.2	2.0	14*	12.0	1.9	14*	11.4	1.8	14*	10.8	1.7	14*	10.4	1.7
	16*	14.8	2.2	16*	14.4	2.0	16*	13.0	1.9	16*	12.4	1.8	16*	11.8	1.7	16*	11.4	1.7
	18*	16.0	2.2	18*	15.6	2.0	18*	14.0	1.9	18*	13.4	1.8	18*	12.8	1.7	18*	12.4	1.7
150 (CFS)	1	5.1	2.7	1	5.0	2.5	1	4.9	2.3	1	4.7	2.2	1	4.6	2.1	1	4.5	2.0
	2*	6.7	2.6	2*	6.6	2.4	2*	6.3	2.3	2*	6.1	2.2	2*	5.9	2.0	2	5.7	1.9
	4*	8.8	2.6	4*	8.5	2.4	4*	8.1	2.3	4*	7.8	2.2	4*	7.5	2.0	4*	7.2	1.9
	6*	10.0	2.6	6*	9.6	2.4	6*	9.0	2.3	6*	8.6	2.2	6*	8.3	2.0	6*	8.0	1.9
	8*	11.2	2.6	8*	10.8	2.4	8*	10.0	2.3	8*	9.4	2.2	8*	9.0	2.0	8*	8.7	1.9
	10*	12.4	2.6	10*	12.0	2.4	10*	11.0	2.3	10*	10.4	2.2	10*	9.8	2.0	10*	9.4	1.9
	12*	13.6	2.6	12*	13.2	2.4	12*	12.0	2.3	12*	11.4	2.2	12*	10.8	2.0	12*	10.4	1.9
	14*	14.8	2.6	14*	14.4	2.4	14*	13.0	2.3	14*	12.4	2.2	14*	11.8	2.0	14*	11.4	1.9
	16*	16.0	2.6	16*	15.6	2.4	16*	14.0	2.3	16*	13.4	2.2	16*	12.8	2.0	16*	12.4	1.9
	18*	17.2	2.6	18*	16.8	2.4	18*	15.0	2.3	18*	14.4	2.2	18*	13.8	2.0	18*	13.4	1.9

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE C-D
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 20'			BW = 22'			BW = 24'			BW = 26'			BW = 28'			BW = 30'			
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
100 (CFS)	1	3.5	1.6	1	3.4	1.5	1	3.3	1.5	1	3.2	1.4	1	3.0	1.4	1	2.9	1.3
	2	4.5	1.5	2	4.3	1.5	2	4.1	1.4	2	4.0	1.4	2	3.8	1.3	2	3.7	1.3
	4*	5.6	1.5	4*	5.4	1.5	4*	5.2	1.4	4*	5.0	1.4	4*	4.8	1.3	4*	4.7	1.3
	6*	6.5	1.5	6*	6.2	1.5	6*	6.0	1.4	6*	5.7	1.4	6*	5.5	1.3	6*	5.3	1.3
	8*	7.3	1.5	8*	6.8	1.5	8*	6.3	1.4	8*	5.3	1.4	8*	5.0	1.4	8*	5.8	1.3
	10*	7.7	1.5	10*	7.3	1.5	10*	7.0	1.4	10*	6.7	1.4	10*	6.5	1.3	10*	6.2	1.3
	12*	8.1	1.5	12*	7.8	1.5	12*	7.4	1.4	12*	7.1	1.4	12*	6.6	1.3	12*	6.6	1.3
	15*	8.3	1.5	15*	8.3	1.5	15*	8.0	1.4	15*	7.6	1.4	15*	7.4	1.3	15*	7.1	1.3
	16*	8.5	1.5	16*	8.2	1.5	16*	7.9	1.4	16*	7.5	1.4	16*	7.2	1.3	16*	7.1	1.3
	18*	8.7	1.5	18*	8.4	1.5	18*	8.1	1.4	18*	7.7	1.4	18*	7.4	1.3	18*	7.1	1.3
125 (CFS)	1	4.0	1.7	1	3.8	1.7	1	3.7	1.6	1	3.6	1.6	1	3.5	1.5	1	3.4	1.5
	2	5.0	1.7	2	4.8	1.6	2	4.7	1.6	2	4.5	1.5	2	4.4	1.5	2	4.2	1.4
	4*	6.4	1.7	4*	6.1	1.6	4*	5.9	1.6	4*	5.7	1.5	4*	5.5	1.5	4*	5.3	1.4
	6*	7.3	1.7	6*	7.0	1.6	6*	6.8	1.5	6*	6.5	1.5	6*	6.3	1.4	6*	6.1	1.4
	8*	8.0	1.7	8*	7.7	1.6	8*	7.4	1.5	8*	7.1	1.5	8*	6.9	1.5	8*	6.6	1.4
	10*	8.3	1.6	10*	8.0	1.5	10*	7.7	1.5	10*	7.4	1.5	10*	7.1	1.4	10*	7.1	1.4
	12*	8.5	1.5	12*	8.1	1.5	12*	7.8	1.5	12*	7.5	1.5	12*	7.5	1.4	12*	7.5	1.4
	15*	8.5	1.5	15*	8.1	1.5	15*	7.8	1.5	15*	7.4	1.5	15*	7.1	1.4	15*	7.1	1.4
	16*	8.7	1.5	16*	8.3	1.5	16*	8.0	1.5	16*	7.7	1.5	16*	7.3	1.4	16*	7.1	1.4
	18*	8.7	1.5	18*	8.3	1.5	18*	8.0	1.5	18*	7.7	1.5	18*	7.3	1.4	18*	7.1	1.4
150 (CFS)	1	4.3	1.9	1	4.2	1.8	1	4.1	1.8	1	3.9	1.7	1	3.8	1.6	1	3.7	1.6
	2	5.5	1.9	2	5.3	1.8	2	5.2	1.7	2	5.0	1.7	2	4.8	1.6	2	4.7	1.5
	4*	7.0	1.9	4*	6.7	1.8	4*	6.5	1.7	4*	6.3	1.6	4*	6.1	1.6	4*	5.9	1.5
	6*	8.0	1.9	6*	7.7	1.8	6*	7.4	1.7	6*	7.2	1.6	6*	6.9	1.6	6*	6.7	1.5
	8*	8.5	1.9	8*	8.2	1.8	8*	8.0	1.7	8*	7.8	1.6	8*	7.6	1.6	8*	7.4	1.6
	10*	8.5	1.9	10*	8.2	1.8	10*	8.0	1.7	10*	7.8	1.6	10*	7.6	1.6	10*	7.4	1.5
	12*	8.5	1.8	12*	8.2	1.8	12*	8.0	1.7	12*	7.8	1.6	12*	7.6	1.6	12*	7.4	1.5
	15*	8.5	1.8	15*	8.2	1.8	15*	8.0	1.7	15*	7.8	1.6	15*	7.6	1.6	15*	7.4	1.5
	16*	8.5	1.8	16*	8.2	1.8	16*	8.0	1.7	16*	7.8	1.6	16*	7.6	1.6	16*	7.4	1.5
	18*	8.5	1.8	18*	8.2	1.8	18*	8.0	1.7	18*	7.8	1.6	18*	7.6	1.6	18*	7.4	1.5

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE C-D
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 32'			BW = 34'			BW = 36'			BW = 38'			BW = 40'			BW =		
	S(%)	V(fps) Hp(ft)		S(%)	V(fps) Hp(ft)		S(%)	V(fps) Hp(ft)		S(%)	V(fps) Hp(ft)		S(%)	V(fps) Hp(ft)		S(%)	V(fps) Hp(ft)
100 (CFS)	1	2.9 1.3		1	2.8 1.3		1	2.7 1.2		1	2.6 1.2		1	2.5 1.2		1	
	2	3.6 1.2		2	3.5 1.2		2	3.4 1.2		2	3.3 1.2		2	3.2 1.1		2	
	4*	4.5 1.2		4	4.3 1.2		4	4.2 1.2		4	4.1 1.2		4	4.0 1.1		4	
	6*	5.1 1.2		6*	4.9 1.2		6*	4.8 1.2		6*	4.6 1.2		6*	4.5 1.1		6	
	8*	5.6 1.2		8*	5.4 1.2		8*	5.2 1.2		8*	5.1 1.2		8*	4.9 1.1		8	
	10*	6.0 1.2		10*	5.8 1.2		10*	5.6 1.2		10*	5.5 1.2		10*	5.3 1.1		10	
	12*	6.4 1.2		12*	6.2 1.2		12*	6.0 1.2		12*	5.8 1.2		12*	5.6 1.1		12	
	15*	6.9 1.2		15*	6.6 1.2		15*	6.4 1.2		15*	6.2 1.2		15*	6.0 1.1		15	
	S(%)	V(fps) Hp(ft)		S(%)	V(fps) Hp(ft)		S(%)	V(fps) Hp(ft)		S(%)	V(fps) Hp(ft)		S(%)	V(fps) Hp(ft)		S(%)	V(fps) Hp(ft)
125 (CFS)	1	3.3 1.4		1	3.2 1.4		1	3.1 1.4		1	3.0 1.3		1	2.9 1.3		1	
	2	4.1 1.4		2	4.0 1.3		2	3.9 1.3		2	3.8 1.3		2	3.7 1.3		2	
	4*	5.1 1.4		4*	5.0 1.3		4*	4.8 1.3		4*	4.7 1.3		4*	4.6 1.2		4	
	6*	5.9 1.4		6*	5.7 1.3		6*	5.5 1.3		6*	5.3 1.3		6*	5.2 1.2		6	
	8*	6.4 1.4		8*	6.2 1.3		8*	6.0 1.3		8*	5.8 1.3		8*	5.7 1.2		8	
	10*	6.9 1.4		10*	6.7 1.3		10*	6.4 1.3		10*	6.2 1.3		10*	6.1 1.2		10	
	12*	7.3 1.4		12*	7.0 1.3		12*	6.9 1.3		12*	6.7 1.3		12*	6.5 1.2		12	
	15*	7.8 1.4		15*	7.6 1.3		15*	7.4 1.3		15*	7.1 1.3		15*	6.9 1.2		15	
	S(%)	V(fps) Hp(ft)		S(%)	V(fps) Hp(ft)		S(%)	V(fps) Hp(ft)		S(%)	V(fps) Hp(ft)		S(%)	V(fps) Hp(ft)		S(%)	V(fps) Hp(ft)
150 (CFS)	1	3.6 1.6		1	3.5 1.5		1	3.4 1.5		1	3.3 1.4		1	3.3 1.4		1	
	2	4.6 1.5		2	4.4 1.5		2	4.3 1.4		2	4.2 1.4		2	4.1 1.4		2	
	4*	5.7 1.5		4*	5.6 1.5		4*	5.4 1.4		4*	5.2 1.4		4*	5.1 1.4		4	
	6*	6.5 1.5		6*	6.3 1.5		6*	6.1 1.4		6*	6.0 1.4		6*	5.8 1.4		6	
	8*	7.1 1.5		8*	6.9 1.5		8*	6.7 1.4		8*	6.5 1.4		8*	6.3 1.4		8	
	10*	7.7 1.5		10*	7.4 1.5		10*	7.2 1.4		10*	7.0 1.4		10*	6.8 1.4		10	
	12*	8.1 1.5		12*	7.9 1.5		12*	7.6 1.4		12*	7.4 1.4		12*	7.2 1.4		12	
	15			15*	8.4 1.5		15*	8.2 1.4		15*	8.0 1.4		15*	7.7 1.4		15	

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE C-D
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 8'			BW = 10'			BW = 12'			BW = 14'			BW = 16'			BW = 18'			
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
175 (CFS)	1	5.5	2.8	1	5.3	2.7	1	5.3	2.5	1	5.1	2.4	1	4.9	2.2	1	4.8	2.1
	2*	7.2	2.8	2*	7.0	2.6	2*	6.7	2.5	2*	6.6	2.3	2*	6.4	2.2	2*	6.2	2.1
	4*	9.4	2.8	4*	9.0	2.6	4*	8.6	2.5	4*	8.4	2.3	4*	8.1	2.2	4*	7.8	2.1
	6*																	
200 (CFS)	1	5.7	3.0	1	5.7	2.8	1	5.6	2.7	1	5.4	2.5	1	5.2	2.4	1	5.1	2.3
	2*	7.5	3.0	2*	7.3	2.8	2*	7.1	2.6	2*	6.9	2.5	2*	6.9	2.4	2*	6.5	2.3
	4*	9.7	3.0	4*	9.4	2.8	4*	9.2	2.6	4*	8.8	2.5	4*	8.6	2.4	4*	8.3	2.3
	6*																	
250 (CFS)	1	6.3	3.3	1	6.2	3.1	1	6.0	3.0	1	5.9	2.8	1	5.8	2.7	1	5.6	2.6
	2*	8.1	3.3	2*	8.0	3.1	2*	7.8	2.9	2*	7.6	2.8	2*	7.4	2.7	2*	7.2	2.5
	4*			4*			4*	10.0	2.9	4*	9.7	2.8	4*	9.5	2.7	4*	9.1	2.5
	6*																	

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE C-D
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 20'			BW = 22'			BW = 24'			BW = 26'			BW = 28'			BW = 30'			
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
175 (CFS)	1	4.7	2.0	1	4.5	2.0	1	4.4	1.9	1	4.3	1.8	1	4.2	1.8	1	4.0	1.7
	2*	5.9	2.0	2	5.7	1.9	2	5.6	1.8	2	5.4	1.8	2	5.2	1.7	2	5.1	1.7
	3*	7.5	2.0	4*	7.3	1.9	4*	7.1	1.8	4*	6.9	1.8	4*	6.6	1.7	4*	6.4	1.7
	6*	8.6	2.0	6*	8.3	1.9	6*	8.1	1.8	6*	7.8	1.8	6*	7.5	1.7	6*	7.3	1.7
	8			8			8			8			8			8		
	10			10			10			10			10			10		
	12			12			12			12			12			12		
	15			15			15			15			15			15		
S(%)			S(%)			S(%)			S(%)			S(%)			S(%)			
200 (CFS)	1	5.0	2.2	1	4.8	2.1	1	4.7	2.0	1	4.6	1.9	1	4.5	1.9	1	4.3	1.8
	2*	6.3	2.2	2*	6.1	2.1	2*	6.0	2.0	2*	5.8	1.9	2	5.6	1.8	2	5.5	1.8
	4*	8.0	2.2	4*	7.7	2.1	4*	7.5	2.0	4*	7.3	1.9	4*	7.1	1.8	4*	6.9	1.8
	6*			6*			6*			6*			6*			6*		
	8			8			8			8			8			8		
	10			10			10			10			10			10		
	12			12			12			12			12			12		
	15			15			15			15			15			15		
S(%)			S(%)			S(%)			S(%)			S(%)			S(%)			
250 (CFS)	1	5.5	2.4	1	5.3	2.3	1	5.2	2.3	1	5.1	2.2	1	5.0	2.1	1	4.9	2.0
	2*	7.0	2.4	2*	6.8	2.3	2*	6.6	2.2	2*	6.4	2.1	2*	6.2	2.1	2*	6.1	2.0
	4*	8.9	2.4	4*	8.6	2.3	4*	8.3	2.2	4*	8.1	2.1	4*	7.9	2.1	4*	7.7	2.0
	6			6			6			6			6			6		
	8			8			8			8			8			8		
	10			10			10			10			10			10		
	12			12			12			12			12			12		
	15			15			15			15			15			15		

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE C-D
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 32'			BW = 34'			BW = 36'			BW = 38'			BW = 40'			BW =			
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
175 (CFS)	1	3.9	1.7	1	3.8	1.6	1	3.7	1.6	1	3.7	1.5	1	3.6	1.5	1		
	2*	5.0	1.6	2	4.8	1.6	2	4.7	1.5	2	4.6	1.5	2	4.5	1.5	2		
	4*	6.2	1.6	4*	6.1	1.6	4*	5.9	1.5	4*	5.7	1.5	4*	5.6	1.5	4		
	6*	7.1	1.6	6*	6.9	1.6	6*	6.7	1.5	6*	6.5	1.5	6*	6.4	1.5	6		
	8*	7.8	1.6	8*	7.5	1.6	8*	7.3	1.5	8*	7.1	1.5	8*	7.0	1.5	8		
	10*	8.4	1.6	10*	8.1	1.6	10*	7.9	1.5	10*	7.7	1.5	10*	7.4	1.5	10		
	12			12			12*	8.3	1.5	12*	8.1	1.5	12*	7.9	1.5	12		
	15			15			15			15			15*	8.4	1.5	15		
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
200 (CFS)	1	4.3	1.8	1	4.1	1.7	1	4.0	1.7	1	3.9	1.6	1	3.8	1.6	1		
	2	5.3	1.7	2	5.2	1.7	2	5.1	1.6	2	4.9	1.6	2	4.8	1.6	2		
	4*	6.7	1.7	4*	6.5	1.7	4*	6.3	1.6	4*	6.2	1.6	4*	6.1	1.6	4		
	6*	7.7	1.7	6*	7.4	1.7	6*	7.2	1.6	6*	7.0	1.6	6*	6.9	1.6	6		
	8*	8.4	1.7	8*	8.1	1.7	8*	7.9	1.6	8*	7.7	1.6	8*	7.5	1.6	8		
	10			10			10*	8.5	1.6	10*	8.3	1.6	10*	8.0	1.6	10		
	12			12			12			12			12			12		
	15			15			15			15			15			15		
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
250 (CFS)	1	4.7	2.0	1	4.6	1.9	1	4.5	1.9	1	4.4	1.8	1	4.3	1.8	1		
	2*	5.0	1.9	2*	5.8	1.9	2	5.7	1.8	2	5.6	1.8	2	5.4	1.7	2		
	4*	7.5	1.9	4*	7.3	1.9	4*	7.1	1.8	4*	7.0	1.8	4*	6.8	1.7	4		
	6*	8.5	1.9	6*	8.3	1.9	6*	8.1	1.8	6*	8.0	1.8	6*	7.7	1.7	6		
	8*			8			8			8			8*	8.5	1.7	8		
	10			10			10			10			10			10		
	12			12			12			12			12			12		
	15			15			15			15			15			15		

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE C-D
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

	BW = 8'			BW = 10'			BW = 12'			BW = 14'			BW = 16'			BW = 18'		
	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)
300 (CFS)	1	6.6	3.8	1	6.5	3.8	1	6.5	3.2	1	6.3	3.1	1	6.2	2.9	1	6.1	2.8
	2*	8.7	3.6	2*	8.5	3.4	2*	8.3	3.2	2*	8.2	3.1	2*	7.9	2.9	2*	7.7	2.8
	4			4			4			4			4			4		
	6			6			6			6			6			6		
	8			8			8			8			8			8		
	10			10			10			10			10			10		
	12			12			12			12			12			12		
	15			15			15			15			15			15		

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE C-D
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 20'			BW = 22'			BW = 24'			BW = 26'			BW = 28'			BW = 30'			
S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	S(%)	V(fps)	H _p (ft)	
300 (CFS)	1	5.9	2.7	1	5.8	2.6	1	5.6	2.5	1	5.6	2.4	1	5.4	2.3	1	5.3	2.2
	2*	7.5	2.7	2*	7.4	2.6	2*	7.2	2.5	2*	7.0	2.4	2*	6.8	2.3	2*	6.7	2.2
	4*	9.6	2.7	4*	9.3	2.6	4*	9.1	2.5	4*	8.8	2.4	4*	8.6	2.3	4*	8.4	2.2
	6			6			6			6			6			6		
	8			8			8			8			8			8		
	10			10			10			10			10			10		
	12			12			12			12			12			12		
	15			15			15			15			15			15		

DESIGN DATA FOR EARTH SPILLWAYS
RETARDANCE C-D
SIDE SLOPE 3:1
LEVEL CREST LENGTH 25'

BW = 32'			BW = 34'			BW = 36'			BW = 38'			BW = 40'			BW =			
S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	S(%)	V(fps)	Hp(ft)	
300 (CFS)	1	5.2	2.2	1	5.1	2.1	1	5.0	2.1	1	4.9	2.0	1	4.8	2.0	1		
	2*	5.5	2.1	2*	5.4	2.1	2*	5.3	2.0	2*	5.1	2.0	2*	5.0	1.9	2		
	4*	8.2	2.1	4*	8.0	2.1	4*	7.8	2.0	4*	7.6	2.0	4*	7.5	1.9	4		
	6			6			6*	8.9	2.0	6*	8.7	2.0	6*	8.5	1.9	6		
	8			8			8			8			8			8		
	10			10			10			10			10			10		
	12			12			12			12			12			12		
	15			15			15			15			15			15		